



The Raleigh Aquarium Society

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May 2023 Newsletter

The Raleigh Aquarium Society (RAS) was founded in 1981 to "encourage and enhance the education, knowledge, and enjoyment of Society members at all levels of experience about the many aspects of the home aquatics hobby". We welcome participants at all levels of experience (including none - we all started that way!). Details can be found at: www.raleighaquariumsociety.org

May Calendar of Events

Thursday May the 4th @ 7:30 PM: RAS Meeting. Tables of different topics to choose from that include: **Saltwater, Tubbing, Shrimp, BAP, and more.** Live, In Person, and at the [NC Vet School](#). (Click link for Google Directions)

Sunday May 14th @ 7:30 PM: Zoom Social Hour (hosted by Caroline Morgan).

Thursday May 18th @ 7:30 PM: Board Meeting (open to all). Contact ras-board@ras.groups.io for info.

Next Saturday Meeting is in July. Tentatively July 8th

Save The Date:

- **FALL AUCTION** – Sunday, September 24th the Ramada Inn. Please reach out to the RAS Board if you want to help organize this.

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Letter from the President (Thomas Narten)

Welcome to the May edition of the RAS Newsletter. I'm a bit late this month, so our May meeting already took place this past Thursday at the Vet School. We'll cover how it went next month.

Our April meeting featured Chris Smith speaking on the bagging and marketing of items. One of the things he covered was various ways to tie and seal plastic bags. Topics like these are good because everyone bags stuff, everyone has experience (and an opinion!), and yet there is always room to learn something new. Going forward, I will be bagging my stuff differently than I did before!

I have some changes in club operation to report. First, Neil Frank has stepped down as Program Chair. He's been at it since at least January 2017. Quite a run, and he deserves a lot of thanks for the MANY MANY fine programs we've had over the years, culminating with this year's CAW program. Thank you, Neil, for all the contributions you have made to our club!

For now, the board is organizing upcoming programs while we put a new person/team in place. (A Call for Participation can be found later in the Newsletter).

There have been some board changes as well. Matt DeGroodt has stepped down from the board, though he continues to lead the BAP program. Jon Wolfe has joined the board, and you may have seen him recently helping out with registration.

Finally, while our treasurer Chris has sent out checks to most people owed money for CAW (expense reimbursement, auction proceeds, etc.) a full financial accounting for CAW has not been completed. Stay tuned. It will come!

That said, in terms of financial health of the club, RAS really is in good shape. See a separate note elsewhere in the newsletter on how our overall finances stand.

Call For Program Committee Members

This is a general call for volunteers and/or participants interested in helping shape the monthly RAS programs and CAW workshop.

What does the Program Chair do? What do Program Committee members do? What does the job entail? The Program Chair (with help from the committee) is responsible for planning and scheduling programs, as well as finding and introducing speakers at our regular monthly club meetings and our yearly CAW program. Programs are a mix of local speakers, social activities involving our own members, bigger-name outside speakers, etc.

For the monthly meetings, we typically have 7-8 local speakers per year (sometimes as a panel, sometimes as tables, etc.). We also bring in 1-3 outside speakers, with the December Holiday Party rounding out our events. The Chair is responsible for identifying possible program topics, reaching out to potential speakers, negotiating with them about topics, dates, logistics, etc. There is also a budget, to pay for speaker meals, some travel, etc.

Ideally, we would have a 1-3 person team plus the chair. Having a team spreads out the work, allows people to bounce ideas off each other and avoids having one person responsible for the entire job, which too easily can become a burden.

What's in it for you (other than helping the club)? One perhaps underappreciated benefit is that being part of the Program Committee gives one the excuse to reach out and meet people, including famous persons in the hobby. Saying that RAS is looking for speakers is a great opening line to start a conversation. And when speakers come, someone has to escort them around and perhaps accompany them to dinner. That provides a wonderful opportunity to ask questions and share experiences.

If anyone is interested in helping out or finding out more about the role, please reach out to any board member (or ask Neil for his thoughts!).

November Auction Report (Thomas Narten)

The April auction featured 37 items. Items came from 10 sellers and went home via 15 buyers. Total revenue for all sales was \$286 with an average selling price of \$7.73 per item. Out of the total revenue, RAS netted \$136 while sellers took home \$150.

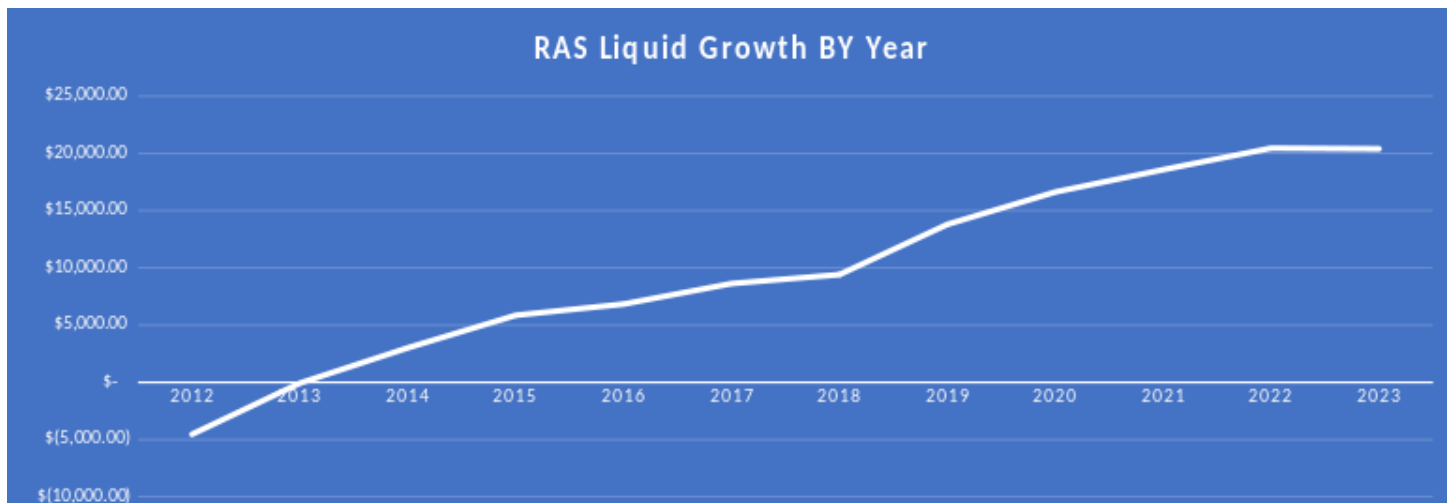
Keep those items coming! Even if you think nobody would want your stuff, I consider it a win to have unwanted or extra items go to fellow club member rather than the compost or as fish food!

Remember also that we have a "freebie" table at monthly meetings, where you can bring unwanted items that you don't need and may not be worth auctioning, but that someone else can use.

Financial State of RAS (2022 Year End)

Overall, the club is in great financial health and has been for a number of years. Our annual operating expenses are manageable, and we have a solid revenue stream from our auctions and membership fees. In fact, our assets are growing, not decreasing.

To review some history, the club has been around since 1982. As a result of some unfortunate events, the club found itself in a bad financial state in 2012, i.e., completely broke with no money in its bank account. That is the year Larry Jinks stepped in as treasurer and the club began a long and steady rebuild of its assets. As seen in the figure below, the club had roughly \$20K in liquid assets at the end of 2022. (Thanks to our Treasurer, Chris Smith, for generating the figure).



Overall, 2022 was a solid year for RAS finances. We essentially broke even for the year, this despite having waived 2022 membership fees for existing 2021 members. The club has seen a steady increase in the number of new (first-time) members over the last few years, including 2022. Perhaps surprisingly, we had \$1360 in 2022 membership income - all of it from new members (i.e., those not members in 2021).

The following figure shows the overall cash flow numbers for the 2022 year. The categories (rows) come from previous budget line items that the board has used in tracking costs. Obviously, some (picnic, spring auction, etc.) are zeros because we didn't actually have such events in 2022.

<u>RAS Budget (2022)</u>	<u>Budget</u>	<u>Income</u>	<u>Expense</u>	<u>Net Revenue</u>
Membership dues		\$1,360.00	\$0.00	\$1,360.00
Door Prizes	\$720.00	\$0.00	\$566.69	-\$566.69
March Tag Sale		\$0.00	\$0.00	\$0.00
monthly auction		\$1,329.00		\$1,329.00
Spring Auction				
Workshop				
Reefsmart	\$750.00	\$725.00	\$1,509.37	-\$784.37
Fall Auction		\$ 1,329	\$200.00	\$1,128.80
logo sales				\$0.00
donations				\$0.00
tag sale				\$0.00
Holiday Party	\$400.00		\$394.54	-\$394.54
				\$0.00
Expenses:				\$0.00
USPS mail box	\$350.00			\$0.00
Website/Squarespace	\$192.00		\$192.00	-\$192.00
DNS	\$35.98		\$35.98	-\$35.98
Zoom	\$179.88		\$179.88	-\$179.88
MyGroupAuction			\$150.00	-\$150.00
insurance	\$266.00		\$266.00	-\$266.00
award plaques			\$470.29	-\$470.29
picnic				\$0.00
equipment				\$0.00
Group Buy/shipping			\$819.16	-\$819.16
club field trips				\$0.00
mo. speaker			\$0.00	\$0.00
supplies				\$0.00
thank you dinner				\$0.00
miscellaneous				\$0.00
Net Total	\$2,893.86	\$4,742.80	\$4,783.91	-\$41.11
		Income	Expense	Year Total Net

The columns are (hopefully) self-explanatory. The "Budget" column refers to the board estimated/budgeted amount for the given line item. The "Income" column reflects actual (net or gross) income for the item/event.

The "Expense" column reflects the actual expenditure for a given line item. The "Net Revenue" is an indication of the overall cost to RAS (revenue - expense) and indicates to what degree a line item paid for itself.

Some additional notes. The Board opted not to renew the USPS PO Box for 2023. The yearly cost would have been \$350, and we received almost no USPS mail in 2022 (we received exactly 1 letter of significance). Probably 95% of our membership renewals are done online via our web site, the rest in person at meetings. The ReefSmart item involved a RAS expenditure to invest in supplies that Jamye used for the kids portion of ReefSmart (and will use again at the June Aquatic Expo in Charlotte). The board (intentionally) planned to break even on the table rentals by charging vendors only enough to cover our costs. We wanted the event to be a success, as this was the first time ReefSmart included a freshwater section.

The cost of group buys was \$819 for 2022. The following figure shows a breakdown of those costs.

Date	Vendor	Coordinator	Participants	Order Total	RAS cost
2022					
11/1/2022	Blackworms	Gerald Pottern			\$60.00
9/8/2022	Wet Spot	Chris Smith	7	\$643.00	\$60.00
5/19/2022	Wet Spot	Chris Smith	10	\$774.00	\$62.50
4/1/2022	Jehmco	Thomas Narten	11	\$1,082.50	\$184.68
4/1/2022	BrineShrimpDirect	Jamye Carr		\$554.74	\$127.00
3/10/2022	Wet Spot	Chris Smith	11	\$950.00	\$69.98
3/1/2022	Blackworms	Gerald Pottern	13	\$320.00	\$60.00
2/1/2022	Blackworms	Gerald Pottern	12	\$320.00	\$60.00
1/1/2022	SwissTropicals	Jamye Carr	6	\$630.00	\$75.00
1/4/2022	Blackworms	Gerald Pottern		\$320.00	\$60.00
				Total (2022)	\$819.16

Any questions, please contact Treasurer Chris Smith or the board.

BAP Program

The 2023 BAP annual season runs from November 16, 2022 to November 15, 2023.

BAP points awarded this month:

Allan O'Briant, Apistogramma Cacatoides

Julie Hayes, Pygmy Corydoras

Mark Goodell, Koi Angel Fish

All BAP program information can be found at: <https://www.raleighaquariumsociety.org/bap>

Interested in the BAP? Please contact Matt DeGroot at: raleighaquariumsociety+BAP@gmail.com

The ras-bap email list is available at groups.io for sharing breeding-specific information and asking questions of the RAS BAP breeder community.

<https://groups.io/g/ras-bap>

Upcoming Group Buys

Nothing planned at this time.

Sponsors will send an email to our ras@ras.groups.io email. You can sign up online at <https://groups.io/>

If you are interested in initiating a group buy, follow these steps:

Confirm board approval of your buy and your shipping budget by emailing your plan for the group buy to “ras-board@groups.io”

Announce your proposed buy to the RAS email list “ras@ras.groups.io”

Include coordinator contact information and instructions for the buy

Allow interested members a minimum of 5 days to send their order to the coordinator before the group buy order is placed with the vendor.

Remember: RAS sponsored group buys means that the RAS pays for the taxes and the shipping costs, allowing all **RAS members (Yes, You!)** to purchase fish, food, and other aquarium supplies at reduced cost. [Group Buys](#) provide access to unusual or hard-to-find fish, plants and foods that generally are not available at local fish stores (LFS). Group Buys are open to all current RAS members, and are organized by individual RAS members, **(Yes, You!)** with the approval of the RAS board. Each group buy has a "sponsor", and participants work directly with the sponsor to work out details of a specific purchase. RAS is open to proposals for additional group buys from all members. [Details here.](#)

Thank you to all our Group Buy Sponsors!

(Article) Colony Breeding v. Planned Matings *by Diana Walstad*

Colony breeding is the default position for most fish and shrimp breeders. For guppies, it means just throwing a bunch of males and females together. The problem is that nothing prevents full siblings from mating or more aggressive males from siring the majority of progeny or large females from skewing the population with their inordinately large batches. Over time and multiple generations, the colony loses its genetic heterozygosity or variation. The resulting inbreeding can lead to infertility, loss of fitness, color vibrancy, etc.

In this article, I would like to focus on male paternity using a very nice scientific study that actually tracked the paternity share of individual male guppies with colony breeding. Overall, it shows the unpredictability of

colony breeding and that some males will dominate a colony.

Devigili's study set up 10 colonies containing 6 males and 8 females. Study fish were from the lab's large, non-inbred colony. The 60 males were of similar size, coloring, and age (3-4 mos. old); the 80 virgin females were of similar size and 3-4 mos. old. Males and females were housed together for 7 days in ten 65 liter tanks. Afterwards, the females were removed and isolated individually until they produced fry. A total of 532 fry from the 72 females that actually reproduced was collected and genotyped. Average brood size was $7.4 (\pm 1.0)$ fry/female. Sires per brood averaged $2.2 (\pm 0.62)$.

Fig 1 presents the siring results—based on the genotyping of the 532 fry—for the 60 males. The figure shows a male's siring success as compared to the other 5 males in his colony. If all 6 males sired an equal share of the colony's fry, each male's share would be 17% ($100\% \div 6 \text{ males} = 17\% \text{ per male}$). However, the graph shows that a full 25 of the 60 males (first column) sired only 0 to 8% of the progeny within their colony. (They didn't do too well!) The third column is where all 60 males should be if they all sired equally well (i.e., 17% of the colony's progeny). The last column shows that one male sired 72-80% of the progeny within his colony. (He did very well!)

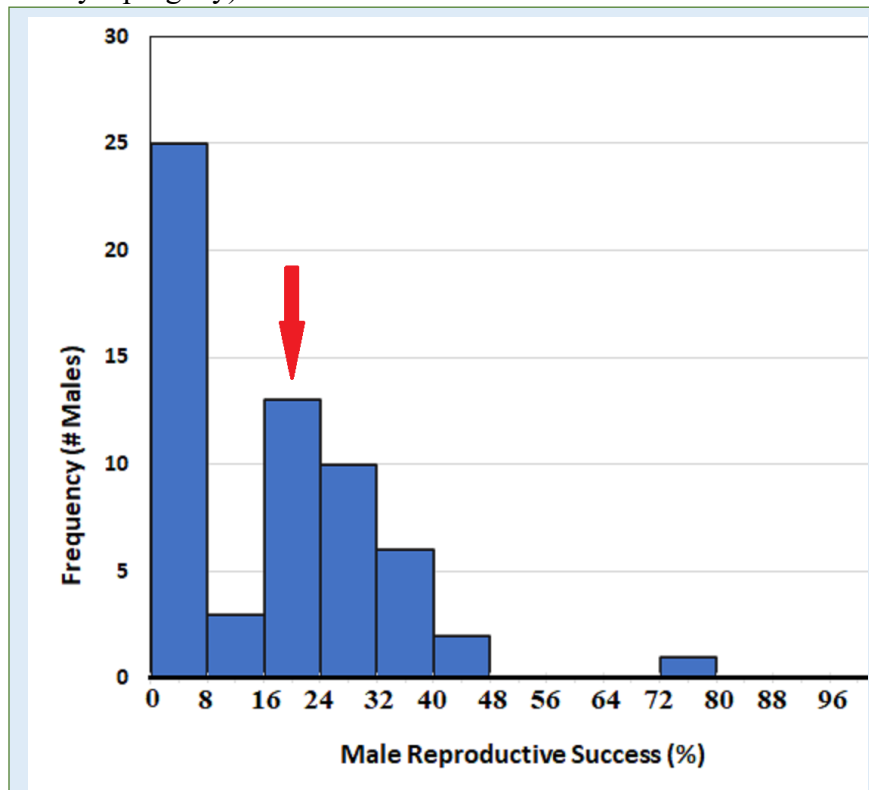


Fig. 1 Competitive Siring Success in 10 Guppy Colonies [1]

Red arrow points to the column that represents a 'male reproductive success' of 16-24%. If all males sired an equal share (i.e., 17%) of their colony's fry, this column would include all 60 males in the study, but here we see it includes only 13 males, meaning that some males sired more progeny than others.

{I redrew Fig 1d from Devigili's 2015 paper [1]}

Because Devigili's study used fish that were carefully selected beforehand for physical similarity, it likely underestimated bias in the siring results. Colonies containing individuals of different sizes, ages, etc. might show much greater paternity bias.

The effective population size (N_e) is one gauge that scientists use to measure genetic heterozygosity. It can be calculated from the frequencies of specified genes sampled within a colony. Long-time breeders of lab guppies [2] showed that despite keeping more than 300 guppies in each of their strains at all times, the initial N_e declined precipitously after 16 years of captive breeding. For example, the N_e of their 'S' guppy strain decreased from an initial 623 to just 18. The colony had been maintained with >300 fish, but it had lost much of its genetic heterozygosity. The investigators attributed some of this genetic loss to the periodic removal of

adult fish for their experiments. Thus, a large colony size helps, but it is no guarantee against the gradual erosion of genetic heterozygosity.

The *Xiphophorus* stock center maintains swordtail and platy species for both conservation and medical research purposes in scientific labs around the world. To prevent inbreeding and maintain genetic heterozygosity, the center's typical breeding strategy is to keep three lines going for each species. Then, for each generation, there are at least 6 planned matings where males and females from the different lines are crossed [3].

I am doing something similar, but not quite so rigorous, with my guppies. I work with 3 lines or phenotypes- Rainbow, Japan Blue and Christmas guppies. Planned matings involve crossing a female and with a male from a different line. For example, I only mate females sired by Rainbow males to Japan Blue males or Christmas males. **Fig 2** shows a planned mating between a Christmas male and a female sired by a Japan Blue male.

I believe that this line breeding—along with selectively breeding older adults—will keep my guppy population genetically healthy.

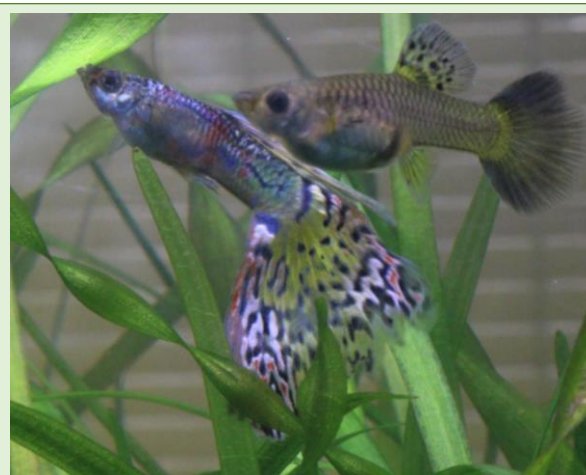


Fig. 2 A Planned Mating

An older male from my 'Christmas' line with a young virgin female from my Japan Blue line. Male carries genes for red and green colors and a spotted pattern that identifies his ancestry.

(Photo taken 03/12/2022)

REFERENCES

1. Devigili A *et al.* 2015. Multivariate selection drives concordant patterns of pre- and postcopulatory sexual selection in a livebearing fish. *Nature Communications* (DOI: 10:1038/ncomms9291)
2. Fujio Y and M Nakajima. 1999. Decrease of the effective population size during maintenance of the guppy strain. *Fisheries Sci.* 65: 362-66.
3. Walter RW *et al.* 2006. *Xiphophorus Genetic Stock Center Manual*, 132 pp.
<<https://www.researchgate.net/publication/228480117>>

If you run across interesting articles and/or video's, please send a pointer to the article to newsletter@ras.groups.io

More Info About RAS

Shop RAS merchandise online at <https://raleighaquariumsociety.qbstores.com/>.

Raleigh Aquarium Society Code of Conduct - We expect persons participating in any and all RAS activities

to act maturely, to behave professionally, to respect the rights and dignity of others, and to treat everyone equally and without discrimination on the grounds of age, gender, disability, race, ethnic origin, nationality, color, parental or marital status, religious belief, class or social background, sexual orientation or political belief. Anyone experiencing or witnessing a potential violation of the Code of Conduct should contact any RAS board member or reach the board at ras-board@groups.io.

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