

November 2017

Pond Happenings

Monthly Newsletter Published by the
Greater Phoenix Pond Society

The Next Meeting: November 11th at 9:00am.

The November meeting will be held at the home of Ron & Penny Christensen.

- Telephone: 480-861-5320 or 480-861-3941
- Address: 237 E. Carter Drive, Tempe, AZ 85282

Bring your lawn chairs & bags/buckets for any plants/fish that may be available.

We Want You!!!

GPPS members will have a great opportunity to get more involved in 2018 as there will be several vacant seats on the GPPS Board. The complete list of volunteer GPPS Board positions includes: President, Vice President, Secretary, Treasurer, Program Coordinator, Librarian, Newsletter Editor and Webmaster.

If you want to know more about any of the positions, you are invited to contact the current board member directly to discuss the responsibilities. Please let one of the current officers know if you are interested in running for a position on the board. The official duties of each position can be found in the club bylaws which are available on our website.

http://phoenixponds.com/News/2009/By_Laws_Greater_Phoenix_Pond_Society_042509.pdf.

Elections will be held at the November meeting and the newly elected officers will begin their responsibilities in January. If you are unable to attend the November meeting, you can still be considered for a position, just say the word and your name will be submitted during the meeting.

We have also begun forming the 2018 meeting calendar so if you are interested in hosting a monthly meeting in 2018, be sure to sign up at one of the upcoming meetings! We love seeing new places!



WE WANT YOU!

Letter from the President

Hello fellow GPPS friends. Thanks to Ian and Tanya for hosting the October meeting. Your back yard, bog and pond look great. I still think with such a large patio you could fine room for a few more. I am sure Ian is also looking forward to improvements.

I enjoyed the presentation from Gary Miller from the Iris Society. Who would have thought there was an Iris Society here from the person who always hears, "You mean there is actually a pond society?" Gary gave a good presentation on the different types of Irises and how to care for them. I think I may see a few show up in our new pond. Great job Gary.

Our November meeting will be at the pond of Ron and Penny Christensen. The November meeting will also be our annual election of officers. I encourage you to think about throwing your hat in for an office. If you have any questions about any of the office responsibilities please review the bylaws on the website or contact me.

We are staying where we are and will start on our new pond very soon. We need to move it to different location to make room for a pool. The new pond will be a very different design (which changes by the hour... very scary!). That means we will have a lot of extra different size rocks to give away. Also 7 tons of pea gravel if someone wants to cart it off. The large bog is also going, going, gone so if you need plants let us know.

We recently rescued 2 adorable small red eared slider turtles. The largest is 6 inches. They are looking for a new forever home. Help!

See you at the next meeting.

Don Shaw – GPPS President



Member Corner

Jeff & Rita Karsten

Area of town: East Chandler

Family: Adult kids & 10 grandkids out of state

Profession(s): Jeff: Facilities Manager, Rita: retired Nurse

Hobbies: Ponds & Landscaping

What got you involved with water gardening: When living in Minnesota my boss built one and I had to have one too.

What is your favorite part of water gardening: The design of the landscape

Favorite fish: Swimming

Future plans: New filter

Sun Country Iris Society

During our October meeting, we had the pleasure of hearing from Gary Miller from Sun Country Iris Society. He shared some great information from his years of experience caring for and cross-pollinating irises. Gary's pictures, insights and passion for irises, especially Louisiana Irises, had many of us looking for ways to add irises to our own yards!

Their website has some amazing pictures, a wealth of information regarding growing various types of irises as well as a helpful glossary of iris related terminology, club events and membership information.

Spoiler alert... Dues are VERY reasonable and I'm guessing it would be very similar to GPPS in that you would never have to buy another iris... EVER. They also have monthly meetings so if you're interested in learning more, check out their website at <http://www.suncountryiris.org/>, they are also on Facebook, just search for Sun Country Iris Society.

More info from the About page of their site:

The Sun Country Iris Society (SCIS) was established in 1969 as an affiliate of the American Iris Society (AIS). We have always been a very active club, hosting one National American Iris Society convention and numerous regional conventions. These bring iris people not only from Arizona and California, but from different parts of the country to see what we are doing and to share their expertise. Our membership includes hybridizers who are working to further improve our favorite flower.

Our Mission: The sole purpose of the SCIS is to stimulate and encourage the culture of iris in the area known as Sun Country. SCIS is not organized to become a self-sufficient entity in itself, but is designed as a means of implementing the principles and ideals of the AIS in the Sun Country area.

SCIS membership has its privileges, including a monthly newsletter that overflows with iris gardening tips, discounted pricing on rhizomes and a guaranteed seat at our annual fall rhizome auctions. Collectively we contribute to the expansion of iris gardens throughout the Sun Country area.

SCIS holds at least one public iris show per year where we encourage both members and non-members to submit entries for competition both in the horticulture division and in the artistic floral design. In addition, the organization sells potted iris in the spring and rhizomes in the fall, which are donated by members and these events serve as our primary fund-raising events.



'Adriatic Blue' (SPU)



'Beneath My Wings' (TB)



'Autumn Ring' (TB)

From the Editor

The poll questions this month were: Do you change feeding habits during the cooler weather months? Perhaps the type of food, frequency of feedings or the time of day you feed? Please share a little about your feeding habits.

Thanks to everyone who answered, the responses show all the years of experience our members have earned. Most of the responses referenced feeding a lower protein formula or Cheerios during the “cold” weather months. Others mentioned that when water temperatures drop low enough, to stop feeding all together... no matter how much the little water piggies beg!

I found the following extensive article on the Aquascape website. It offers a TON of information on feeding, in fact, it covers just about anything you might want to know about feeding. Enjoy!!

Have ideas, questions or comments for the poll question portion of the newsletter? Let me know!

Tanya Brown-GPPS Editor

How often or how much should I feed my Koi and Pond Fish?

When, Where, and What Works Best

By Dr. Erik Johnson

There are notable differences between the way koi and goldfish tend to eat. Of course, there are a lot of similarities too. Either way, there are many useful things for you to know about how, when, and where to feed koi and goldfish!

An Appetite for Foraging

Koi and goldfish eat a lot, but goldfish are better foragers. If you took two identical ponds and you neglected to feed both ponds equally, the population in the koi pond would die out faster than the population in the goldfish pond. Part of the reason is that koi eat more, so they starve faster. Part of the reason is that goldfish will find food anywhere, including swimming prey like rotifers, fish fry, and insect larva. Koi, on the other hand, tend not to identify or attack small prey like that. Their usual foraging method is bottom sifting, and if the pond has no aggregate or mud on the bottom, there will be no natural forage. Most people would be very surprised by the amount of live fish food that can be found living in the gravel of a properly maintained gravel-bottom pond.

Overfeeding

The most common feeding mistake is overfeeding. This is because the feeding process is arguably the most fun you can have with your fish. At feeding time, koi come up to eat so you can see them and interact with them. Anyone with a maternal instinct will be thrilled to watch their favorite fish engulf food with such koi-ish zeal. Overfeeding occurs anytime the fish are eating more than they need. This can make your fish sick, and excessive amounts of waste that strains the limits of what can be biologically reduced, results in a decline of water quality. Fish that are overfed in typical ornamental pond facilities will eventually develop large bellies and begin to look a little bit like tadpoles, with the big body and the wispy tail. That will not usually kill the fish, but the impact on the liver and other internal organs can and will be severe. So How Much is Just Right?

Fish should be fed no more than three times per day. In cooler water (65-70) they should only be fed once per day, if that. In much warmer water (76-82), three times per day is not "crazy," however, you have to be wary of bacterial blooms (cloudy water and low oxygen levels) if you feed heavy and there's a lot of waste. Fish should be fed for about five minutes per feeding. If they don't come up and eat voraciously, they are telling you that they are too cold, too warm or, for some other reason, are not hungry. So feed light. If they are eating like crazy, you can sprinkle food on the water for five minutes as long as there are fish there to carry it off and eat it. Pretend it's a game – never feed so much that there is excess food left to float into the skimmer or filter.

Underfeeding

Sometimes a person is very busy and they may neglect to feed the fish every day. This impacts the very large fish, which in summer, will rapidly lose weight as their metabolism is working without enough calories for their big bodies. It also affects very small fish, which will be stunted or, in extreme cases, die. Fish in ponds with natural forage and some plant material will help themselves to nature's bounty and are less dependent on their human owners for nourishment.

If your fish are growing about a ½ to 1 inch per month, you're feeding enough. If not, you are either underfeeding, keeping them in too small facilities, or the food is not adequate to push growth. Signs of underfeeding include, heads that are wider than bodies, slightly sunken eyes, a kink at the base of the tail, poor color, thinness, trailing white stools, and inactivity.

Feeding in Cold Water

Fish will feel hungry in cold water, even down to the mid 40's, however the enzymes needed for the digestion of most koi food will be lacking. The fish will eat, sometimes fully, and then languor in the cold water as their metabolism slogs the food through. In very cold water, fish simply don't eat. If the food is going to be processed by cold fish with impaired metabolism, it makes sense to offer foods that are easily and quickly digestible and contain minimal residue to stall their gut. Over the years, soluble plant proteins like wheat germ were found to be effective, and so were Cheerios. Fish love Cheerios, especially the Honey Nut Cheerios. Try it, you will see they go for the darker, tastier(?) Honey Nut Cheerios over the plain ones. And they can tell when you buy generic Cheerios. But it's okay.

The point of Cheerios is that they supply some useful energy, with minimal nitrogen to strain a cold biological filtration system, and the fish like 'em. A lot. In my own pond, I've noticed that Cheerios are sort of fattening when offered with regular food year round, so if you want to put some weight on a big female fish, especially through her face, give her some Cheerios with her regular diet through the year.

In cold water I recommend that you:

1. Reduce feeding drastically in water under 70° but above 64° Fahrenheit. Feed sparingly once per day or every other day. Watch for elevations in Ammonia because of a stalled bio filtration.
2. Feed Cheerios once, every other day in water under 64° but above 53°.
3. Stop feeding when water temps are consistently under 55° - 53°.
4. Resume feeding Cheerios in the Spring when water temps are consistently at or above 55° - 53°

Feeding in Warm Water

Feeding fish in warm water is an interesting conundrum. The fish NEED a lot of food because they are burning a LOT of calories. The pond's biological reduction system is optimized and working ferociously on fish wastes. But warmer water carries less oxygen. Feeding Koi a lot of food in the warm months is desirable, and it ensures good health and growth. But if you go too far, and overfeed them, the water quality will deteriorate, and if you overfeed enough, there can be a sudden bloom of bacteria that will:

1. Cloud the water
2. Weaken or stress the fish
3. Consume much, if not all, of the available dissolved oxygen.

Don't take the low oxygen level lightly, because even after many seasons without a problem, you can get into trouble. I did this one summer. I fed heavily and the fish were doing well. What I did not acknowledge was that my oxygen levels were TEETERING in the danger zone because of the high use of oxygen by the fish, the heavy feeding, the biological bacteria doing it's thing, and the warmth of the water. I went to net my favorite fish, and she simply stroked out for lack of oxygen in her peak metabolic condition and then compounded by warm water and the chase.

What Can You Do?

Well, waterfalls do a lot to contribute oxygen to the scenario. So breathe a sigh of relief if you have a robust waterfall or two. Additional water pumping with a spray bar can increase oxygen. If the pond is in filtered sunlight or only gets baked for part of the day, it will be cooler, and therefore contain more oxygen. In the hot south and southwest, a shade cloth can be used to cool the water if needed. Feeding heavily, but being alert about it, is an ingredient for success.

Where to Feed

In the day-to-day experience of ponding, where to feed can be significant. Many people feed the fish all at once, near the skimmer. Because they don't know about sprinkling the food for five minutes, they dump the whole coffee-can of food four feet from their skimmer and off it goes. Hungry fish living in polluted water is the result. Skimmers are great, don't get me wrong, but if there's a place you can feed the fish where it doesn't migrate to the skimmer too quickly, choose that space instead.

Proper Food Storage

Sometimes you luck out and get a deal on bulk foods. Too bad. I do not recommend that you buy big bags of food unless your fish can eat it all in a season or you can keep 45 pounds of food in the fridge. Of course, if you can, do it! Otherwise, the fish food sits in the bag in a "cool dark place" and weevils hatch in it and the food is lost. Or mold grows in it, and it's lost. Or, the cats (or mice) tear out the bottom corner of the bag and the food spreads across the floor of the garage like a cancer. Can you tell I've, "been there, done that"? If you do buy fish food in large quantities refrigerate it, don't freeze it. Freezing damages (think freezer burn) the fats in the food and so the fat-soluble vitamins are compromised. Foods which are packed in nitrogen (no oxygen) by the manufacturer are better than food which is in cans with oxygen. If you can find food which has a bag that allows expression of air from the bag and resealing, that is optimal.

What About Old Food?

If food begins to smell "funny," develops a fuzz on it, changes color, sticks together or crumbles down, it's old or "bad" and should be discarded. Feeding "bad" food will cause a lot of problems with your fish, because much of what grows in fish foods produces what are known as aflatoxins, which can cause injury, deficiency, and broken backs in fish that eat these spoiled foods. Truly, it's better for your fish to go hungry while waiting for you to get fresh food, rather than being fed spoiled food

What Protein Is and Does

So, we've talked about feeding, now let's talk nutrition. What's in food and what does it do? Protein is what your cells are made of. Muscle cells provide the most protein – that's why most humans and animals eat meat (muscle). Protein helps regenerate red and white blood cells, which have a finite life span in the blood stream. So, how does the fish replace these cells in winter when it's not eating? Very difficult. This is one reason why spring is often fraught with disease.

Studies have been done which compared the digestion of protein in fish. They tested, among others, chicken, fish, plant, and beef protein and you will not be surprised to know that fish proteins were the best digested and assimilated by fish. Fish eat fish. This makes sense because the incidence of fish leaping onto shore and eating cows is very, very low to non-existent. Fish are adapted to the consumption of others in their food chain. So fish proteins are the best for fish. So when you look at a bag of food and the first ingredient is wheat, that's not the best choice for your fish. Wheat protein is not equal to fish protein. So keep looking. You should look for fish or aquacultural proteins as the first ingredient in a decent diet for your koi and goldfish. Fish can digest corn. But their bodies do not assimilate it as well as fish proteins in fact, they might not assimilate it at all if an amino acid is missing from the protein in the food.

So, Plant Proteins in Koi Food Are Bad?

Not at all! There are three common purposes for plant material in the food. Fiber, protein, and energy (carbohydrate) are all functions of plant proteins. When a company puts corn in a diet just for protein, that's bad. But when wheat, soy, or corn meals are used in addition to aquacultural proteins to provide some protein and some energy it's a "good thing" because proteins in corn, soy, or wheat are very different from proteins in a feed ingredient like shrimp or blood meal. Corn protein may be very heavy in leucine or lysine. While shrimp meal may be heavy in sulfur-containing amino acids and very low in lysine. Therefore, proteins from both plant and animal proteins ensure that all essential amino acids are represented and make it complete. At the same time, plant proteins can contribute needed energy in the form of carbohydrates as well as bringing fiber to the equation. So, you might see fishmeal as the first ingredient in a diet. Then lower on the list you might see wheat germ, or soybean meal, or corn gluten meal. Don't be put off by these dual-purpose ingredients.

Fats

Fat is important in a diet to carry energy and soluble vitamins to the fish. Fat supplies a dense energy source. However, fat is a dangerous component in foods because when it gets too high, it can cause the food to spoil more easily, and can even function as "moisture" for the growth of certain moulds. So manufacturers are very careful about the fat and moisture content of foods. Fat content of 3 to 9 percent are safe, reasonable levels.

Carbohydrates

Carbohydrates are the immediate energy source for the fish. Due to their carnivorous nature, fish tend to be poor at utilizing carbohydrate so they may store it in the muscle or discharge it in the waste. This doesn't change the fact that it's important although it's usually not listed as a percentage on most fish food labels.

Minerals

Much discussion exists about the mineral requirements of fish. I personally recommend that if a food for koi contains some extra calcium and low phosphorous, it could be considered "better" than a food that pays no attention to the calcium and phosphorus.

Vitamins

Important vitamins seem to be fat soluble A,D,E, and K - and vitamin C. Vitamin deficiencies from missing vitamins are comparatively rare in the last two decades. This is because vitamin premixes exist in the processing of fish food that have eliminated most of the mystery and a lot of the onerous expense. When these vitamins are deficient, it can result in lesions of the skin, eyes, and nervous system. Vitamin C is not so mysterious. Addition of vitamin C to the diet of koi and goldfish is a beneficial for several reasons. First, it's essential to the fish and is a major contribution to disease resistance. Second, food processing degrades vitamin C so that a surplus has to be added so a sufficient amount survives the processing of the food. If available over 180 milligrams per kilogram, the immune system is not only supported, but dramatically enhanced.

Assessing an Ingredients Label

Ingredients labels can be very exciting, or very misleading. They can be exciting because they seem to report excellent ingredients and real care and attention in manufacture. Misleading labels use techniques like ingredient splitting and foreign law to dupe the consumer. Come with me to the store and we shall assess a label together in nine steps.

Assessing the Fish Food Label: Step-By-Step

- **Assessment 1:** Protein source. Look for fishmeal, squid meal, whitefish meal, anchovy meal, shrimp meal, blood meal, herring meal or other aquaculture protein as first ingredients. These are the best protein sources for fish and are the ones I recommend.
- **Assessment 2:** Purpose of plant material. If you find a food that has no aquaculture protein but it has two plant proteins, then the manufacturer is trying to get cheaper plant ingredients to do what fishmeal should be doing. However, if you find a food with fish meal as the first ingredient and then wheat germ meal or similar, they are using the plant ingredient for protein AND energy, letting the fishmeal carry the bulk of the protein requirement, which is as it should be. There will be some plant protein in most foods. It's used as a helper, dual-purpose ingredient and it's not to be eschewed.
- **Assessment 3:** Ingredient splitting. Look for any ingredient twice on the list. If you were manufacturing a food and found wheat to be cheaper than fishmeal, you would want to use wheat to save money. But, you know the consumers want the fishmeal to be first on the list. So you split the wheat! Here's an example: A fish food has three pounds of wheat and two pounds of fish meal would have the ingredients listed in order by weight. To get around this, the manufacturer splits the wheat in half and lists it as two different forms of wheat. So that label reads, fish meal, wheat germ,

wheat flour (in that order). This makes it appear to the consumer that the food contains a higher amount of aquaculture than any other ingredient.

- **Assessment 4:** Protein percent. Let's say a company who is tailoring a feed to the prevailing market-climate wants to use four aquacultural proteins, and tosses in shrimp, kelp, spirulina, and squid meal. That would be awesome! But it could jack up the proteins to a level unsuitable for fish, or at least unnecessary (and expensive). Koi can't digest more than 32 to 36 percent protein in one pass. Feeding more than that isn't necessarily a bad thing because fish will simply pass what they don't digest – it's just expensive to pay for. So, looking for minimums, and recognizing that an outrageously high protein percentage you might be paying for is unnecessary.
- **Assessment 5:** Fat content. Find a food between 3 to 10 percent crude fat. The high end of this range is good for smaller fish, and the lower end of the range is good for adult fish. * **Assessment 6:** Ascorbic acid. Make sure ascorbic acid, or L-Ascorbyl-2-Phosphate is on the label among the trailing ingredients. It will represent a very small part of the diet but it should be added to any milled food.
- **Assessment 6:** Immune boosters. Some foods are made with immune boosters. These are certainly harmless and they may very well perform as promised depending on which ones we're talking about. Look for any combination of following supposed immune-boosting ingredients: Optimun, Aquagen, Nucleotides, Torula Yeast, Brewer's Yeast, Bee Propolis, Colostrum, Aspergillus niger, beta carotene, lactoferrin. Don't hang your hat on any particular ingredient as a miracle supplement or lifesaver – okay? Just recognize that the addition of these items represents the manufacturer as a little more attentive and knowledgeable, and the food worth a little extra money.
- **Assessment 7:** Color enhancers. Are there color enhancers in the diet? Look for terms like Spirulina, Bio-Red, BetaCarotene, Canthaxanthin, Marigold petals, Xanthins, Shrimp Oil, Synthetic and Non Synthetic Carotenoids, or Color Enhancers on the label. Generally, the shrimp oil is the most expensive. It performs as well or better than the synthetic carotenoids but either is acceptable. Spirulina cannot push color unless the fish are exposed to sunlight. None of these color enhancers are hazardous to fish but can make a fish with a yellow head more yellow or a fish with a tendency towards pink pinker. No color enhancer can replace the irrefutable contribution of genetics and sunlight to color.
- **Assessment 8:** Ash content if stated. Sometimes companies will level with you and tell you the "crap" content of their food. Ash is what's left behind when you incinerate (or the fish digests) the food. It's almost all carbon and mineral. So the higher the ash number, the less likely one is to appreciate it. Generally, when ash is high, a smart label guy would just leave it off, and they are allowed to because it's not required on fish food bags.

An oddity about pellet size

Small fish need small pellets that they can wholly engulf, but they will spend time chasing the biggest pellets. It would be better for the fish if they were given a small pellet they could entirely engulf. They could fill their stomachs instead of scraping off a meal over a lengthy time. Can small fish eat large pellet? Yes, but that is only by badgering the large pellet around the surface of the pond as it softens in the water, and eating off it like a giant peach.

Koi Treats

There are a lot of fish "treats" on the market. How much of it has actually been tried and how much is theory, I shudder to think, so I am only going to comment on what I personally have given my fish.

- **Silkworm pupae** – Available in various places and comes in sealed, silver bags. This delicacy drives koi crazy. Really, really nutty. They love them. I guess when a silkworm gets old and stops making silk, it is "history" and is freeze-dried for koi. Lip-smacking good, I guess. Fed in abundance, the protein can accumulate a good bit of nitrogen (ammonia) in the water, so please check ammonias if you're going crazy feeding silkworm pupae.
- **Grapefruit** – Cut the grapefruit into quarters. They'll float and the fish will be attracted at once. Watch out to make sure the skins don't jam up a pump or clog your skimmer. Fed too much, the vitamin C acid will scorch the lips of your fish to a pale pink color, no harm – just back off with the grapefruit. Once per week is plenty.
- **Watermelon** – They liked it but not as much as grapefruit. It doesn't supply much nutrition so I have not done this as much as grapefruit.
- **Orange slices** – Big fish will earnestly take mandarin orange slices right out of your hand. Very cool, delicious to the fish, I guess, and loaded in vitamin C. Larger seedless oranges can be cut as Grapefruit and will do as well.
- **Peas** – The pain in the neck to me about these was that they sank fast and if the koi didn't see them go in, they miss them on the bottom. So there's the chance of wasting the peas and polluting the pond. So make sure you let the fish know you're there, and "here come the peas." They say that the peas could be skinned. Yeah, sure, I have time for that, how about you? My loi liked the peas quite a bit, when they realized they were there.
- **Romaine** – Nutritionally invisible, but perhaps the least messy of "greens" for the fish to munch on if you like them to have something to eat like that. Don't bother with iceberg lettuce. Get the darkest romaine you can and cut it into six-inch strips of the thinness suitable for your fish. They will chomp on the thick center spines of the leaf later.
- **Hyacinths** – Delicious to koi. Cut off the roots because they are a mess!!!! I repeat, cut off the roots. Then fracture the plant so it's barely hanging together and toss it on the pond upside down, foliage in the water. The larger koi especially will eat the youngest leaves first and then pretty much annihilate the whole plant. Do not offer roots because the koi will rip them up and send them directly to your pump's impeller, which could choke to death.
- **Duckweed** – Koi and goldfish love this, and will eat all of this – if they can. In really large ponds a balance may be struck where the koi cannot or will not eat all of it, but in a standard sized (about 11' x 14') pond, duckweed will be a short-lived commodity. If you want, it's easily grow outside their abode in vats, baby pools, and tubs in a sunny spot with six inches water. The water should be fairly well circulated, and throw in a handful of koi food for fertilizer.
- **Worms** – Koi eat earthworms, Georgia reds, nightcrawlers, pinks, and others. Some people say that you should drown the worms in water first because the "hazardous soil" is expelled from the

Editor's Note:

I recently bought these Koi Krunchies from Aquascape to try to bribe my fish to start hand feeding. I'll let you know how it goes!



worm when it drowns and then goes flaccid. Uh, my fish wouldn't eat them dead, either. Fresh, active earthworms are well accepted and safe and when the first koi hits a worm, the rest quickly catch on.

- **Fish** – Koi can be trained to like fish. A very good friend of mine feeds his koi thawed sardines chopped up. Nutritious? YES! And sardines (being from salt water) are less likely to carry parasites applicable to koi. So, again, in moderation, these treats are okay for koi, and certainly well enjoyed.
- **Cheerios** – We discussed Cheerios in the winter-feeding section but let me restate that ANY time of year, koi will appreciate Honey Nut Cheerios as a treat. It is low residue and low nitrogen, what's not to love? A+
- **Chicken** – Yes, I did this. It wasn't a smashing success. I ate the fried part (duh) and gave them the white meat, in pinches. They looked at it and swam around it a while and then hit it with pretty good gusto. But it made some debris when they chewed it with their back teeth and wasn't "loved" so I include it here as something they'll take, but not necessarily love.

Is there anything I probably should NOT feed Koi as a treat?

I've heard that grapes can contain some oxalates and that apple seeds contain cyanide. The math on these says that if you got a koi to eat a cubic meter of grapes or appleseeds in a day's time, said koi could perish from the crystallization of the oxalates in his kidney. For your information, a koi that could eat a cubic meter of grapes in a day would measure about forty-two feet long and weigh in at 2,300 pounds. So my advice on koi treats is, "If you would eat it, and the fish can eat it without it dissolving in, or polluting the pond, try it, and see if they like it. Don't feed any treat so much as to replace their interest in nutritionally complete staple food."

Koi Cannibalism

Well, what discussion of koi nutrition would be complete unless we talked about the koi's more jocular habits of eating fry, frogs and each other? More fantastic than fact, here are some things you might not know. Large Koi and large frogs In the spring you can hear spring peepers in your pond and low areas of your yard or the woods. In the cold months of spring they spawn and lay strands of eggs. And sometimes, they get in your pond, and a big koi catches one. Or, like at my house, all the koi catch one. And so you get up in the morning and one of your koi has a pair of frog legs sticking out of its mouths and they like the taste pretty good, but they can't work it down. So they swim around with the frogs in their mouths like pacifiers. Some of the largest fish can get the frogs down, some eventually spit them out and you have to net them out or they will decay and make a mess.

Finally, you should know this about baby koi. A momma koi will lay many tens of thousands of eggs per spawn. And her babies will be very numerous. And these fry mature at differing rates. The brown solid-colored babies will mature faster than the bright solid-colored fish and these babies will mature more quickly than any two or three colored fish. So it happens that often you see several much-larger baby fish in a spawn swimming about with a tiny sibling tail in its mouth. These cannibals eat prodigiously and the more they eat the bigger they get and the faster they get there. So breeders know to remove these cannibals. If you don't you will have a nice collection of Ogons and no multicolored fish in a spawn. So koi can be cannibalistic when they're fry. Later in life, it would be exceedingly rare to see a large koi eat a small one.

2017 GPPS Meetings & Events

January 14th: Meeting - 9am Host: Tammy Purtell	February 11th: Meeting - 9am Hosts: Don & Dawn Jarratt 10th-12th: Chinese Cultural Fair	March 11th: Meeting - 9am Japanese Friendship Garden
April 8th: Meeting - 9am Hosts: Annie Foster & Mike Galeski 28th-30 th : Home Show	May NO MEETING 13th GPPS Pond Tour 9am-4pm	June 10th: Meeting - 9am Hosts: Jeff & Rita Karsten
July NO MEETING	August NO MEETING	September 9th: Meeting - 9am Hosts: Chuck & Joy Basso
October 14th: Meeting - 9am Hosts: Tanya & Ian Brown	November 11th: Meeting - 9am Hosts: Ron & Penny Christensen BOD Election	December 9th: Meeting - 11am Hosts: Richard & Pet Smith Holiday Potluck White Elephant Gift Exchange Fantastic Food & Fun

Your 2017 Board

GPPS Executive Committee			
President	Don Shaw	602-332-8112	president@phoenixponds.com
Vice President	Judy Restad		vicepres@phoenixponds.com
Secretary	Sue Beard		secretary@phoenixponds.com
Treasurer	Annie Foster		treasurer@phoenixponds.com
Event Coordinator	Chris Krum		events@phoenixponds.com
Newsletter Editor	Tanya Brown		newsltr@phoenixponds.com
Librarian	Jeff Karsten		librarian@phoenixponds.com
Webmaster	Dennis Beard		webmaster@phoenixponds.com

GPPS TECHNICAL COMMITTEE

Jeff Karsten	rj_kars10@yahoo.com
Chuck Basso	1chuckbasso@gmail.com



Sale, Trade, or Free

PLEASE??... Annie has three large lava rocks that are free for the taking! Contact her at 602-616-5138. She can send pictures to interested individuals.

Don & Fern are relocating!! Stay tuned for plants & supplies they will have available coming soon!

Have an item or service to advertise in the newsletter? Or a tip, trick, recommendation or idea to share? Send your

submission to: newsltr@phoenixponds.com

If anyone finds a broken link or out of date information on the web pages, please send information like the page name and what needs to be changed or fixed to webmaster@phoenixponds.com

WEB 101:

If a member wishes to view archived Club Newsletters they must use the URL below. That URL is not a link from any of our pages. There is no need for a password.

You can make it a bookmarked or favorite in your browser. I suggest that you highlight and copy the below URL. If you wish to type it in your browser's address window NOTE: there is an Underscore (_) between the gppsarchive and the .htm Failure to type the underscore will result in an error message.

http://www.phoenixponds.com/News/gppsarchive_.htm

Treasurers Report

Starting Balance	\$2902.35
Income	
Dues	\$50.00
Expenses	
Storage	\$40.69
Ending Balance	\$2911.66

GPPS Newsletter

Monthly Submission Deadline: 18th of each month. Newsletters will be sent out by the end of each month. All submissions are subject to review and all materials become the property of GPPS. Due to space and timing, it is not guaranteed that all submissions will be printed.