

**Dave and Debby Young**

11355 W Picture Rocks Rd Tucson, AZ 85743  
 Phone: (520) 237-5249 or (520) 682-7697

*Education Starts at 3:00*

From I-10, west on Ina, South on Wade, which become Picture Rocks Rd.

*Please let Brent know if you are interested in hosting a meeting.*

**SAKA, Inc Club Officers**

<b>President</b>	Bob Panter <a href="mailto:sakabob@cox.net">sakabob@cox.net</a> (520) 747-7278
<b>Vice President</b>	David Young <a href="mailto:koiman@mindspring.com">koiman@mindspring.com</a> (520) 403-2949
<b>Secretary</b>	Karen Johnson (520) 400-2073
<b>Treasurer</b>	Dan and Martha Cover <a href="mailto:mardan79@msn.com">mardan79@msn.com</a> (520) 297-4071

**Committees/Points of Contact**

<b>2013 Pond Tour</b>	
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<b>34th Koi Show Co-Chairperson(s)</b>	Brent VanKoeving <a href="mailto:bvankoeving@longrealty.com">bvankoeving@longrealty.com</a> (520) 780-3980
<b>AKCA Representative</b>	Debby Young <a href="mailto:debbyt@akca.org">debbyt@akca.org</a> (520) 682-7697
<b>Newsletter Editor</b>	Brent VanKoeving <a href="mailto:bvankoeving@longrealty.com">bvankoeving@longrealty.com</a> (520) 780-3980
<b>Koi Health Advisor</b>	Noel Shaw <a href="mailto:koifixer@yahoo.com">koifixer@yahoo.com</a> (520) 400-0335
<b>Membership Chairperson</b>	Faye Hall (520) 297-1253
<b>Education Committee</b>	TBD

Editor's Note: Articles published herein are intended for the enjoyment of all and come from a variety of sources. The articles are not intended to replace veterinary advice. Pond owners, and not the club, are responsible for the health of their koi, water changes, what to do, and how to treat their pond. Reasonable effort is made to review these articles for accuracy before including them in the newsletter.

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### Club Meetings

**Hosting Meetings:** For those wishing to host an upcoming business/education meeting, the club will reimburse the host up to \$50 (with receipts) toward food/beverage for the meeting. **We would like to see your pond!** Please contact Bob Panter or Brent VanKoeving if you are interested in hosting a meeting.

### Club Announcements

Koi Meeting Minutes

Sept. 22,2013

Dave Young calls to order.

Duane suggests we update the web site.

Show report:

Set up to begin Friday morning, Nov. 8th.

Noel bring bags.

Meet the Judges Dinner Friday, at the show site, at 7 PM., will be potluck.

Banquet Dinner Saturday, at La Fuente (SP?) , at 6:30.

Cost of \$20.00 per person. There will be 4 meal choices. (Not listed.)

Show help needed: Members needed to help bag.

Deb Young has raffle tickets, \$1 ea or 6/\$5.00, 12/\$10

Show breakfast will be at Brent Van Koeverings at 8AM.

Auction will be at noon, with raffle. Teardown will be at 3:00 PM.

Old Business: Alan to get tanks from Brian and Robbie.

New Business: None

Treasurer's Report: Checking \$13,018.19

Savings \$5,205.50

Correspondence: None

Motion to adjourn, seconded, so moved.

## Featured Articles

### The United Colors of Nishikigoi

*By Dr. David Pool, Tetra Reprint courtesy of Nishikigoi International via Cascade Koi & Goldfish Club*

The coloration and patterns of a Koi are in many cases, the thing that attracts people into the hobby of Koi keeping. These same two factors are also very important in determining the quality and therefore value of any particular fish.

Yet our understanding of fish and, particularly Koi, coloration is still and inexact science, which is plagued by theories, old wives tales and relatively few facts.

My aim here is to provide an overview Kai coloration and in doing so help to explain some of the mysterious changes you may have noticed in your own fish.

#### **What makes color?**

The coloration of a Kai is produced by three color pigments which are contained within cells called chromatophores. The three pigments are Erythrin (red), Melanin (black) and Xanthin (yellow), each of which occurs, in different chromatophores. Complementing the color pigment are irridocytes which can be best described as tiny reflective spheres within the skin.

All of the colors we see on our Kai are a mixture of these components. For example orange is a combination of red and yellow chromatophores; brown is a mixture of black and yellow and red is just the red chromatophores. If there are no chromatophores present the Koi will appear white due to the irridocytes. However, the position of the irridocytes within the skin affects its reflective properties. If they are on the surface of the scales the Kai will have a silvery appearance. If they are in the lower layers of the skin the fish will have a mat color.

In certain cases, the irridocytes can combine with the chromatophores to produce reflective colors (e.g. gold on the surface). Blue is an unusual color in that it is a result of deep lying black pigment with irridocytes in the middle of layers of the skin. The irridocytes interfere with the light to give a blue color.

## **Destiny of color**

The chromatophores may be positioned on the surface of the skin (above the scales), immediately under the scales or deep in the skin. If the chromatophores are very dense the coloration will also appear dense, with the chromatophores on the surface of the skin blocking those below. However, the position of the chromatophores affects the 'stability' of the color. The chromatophores on the surface of the skin will often produce unstable coloration due to them being removed or spreading as the fish ages. Those deep in the skin are more stable and less likely to break up. The ideal is to have the some, dense color pigment in all layers of the skin. This results in both a dense and stable color.

## **Where does the color come from?**

Koi cannot synthesize their own color pigment therefore they have to consume it. In wild conditions the color pigments would originate from eating algae, shrimps, snails etc, In the confines of a Kai pond there is insufficient of these different organisms to satisfy the Kai's requirements, therefore it is important to feed color-enhancing foods. As with all Koi feeds, it is important that the color enhancing food given is of high quality to ensure that the pigments are in a form that the fish can absorb into its body.

If color foods are not given to your Koi, the chromatophores would not be filled with pigment and the Koi will look pale or poorly colored. This can result in a Kai of high potential quality only looking mediocre. Feeding a color food would greatly enhance the appearance of such a Kai - but could not make a poor Kai great.

When the chromatophores are filled with pigment, the excess is passed through the Koi in the feces. It is possible to get white areas of the koi becoming pink due to a temporary build up of Erythrin. This pigment is not in a chromatophores and will quickly disappear as soon as the amount of color food given is reduced.

## **Aging**

Each Kai is born with a fixed number of chromatophores which remains relatively constant throughout its life. As the Kai ages and grows, these chromatophores, have to cover a larger area of skin therefore there is a tendency for the coloration to become paler (due to the chromatophores becoming less dense) or to fragment. This helps to explain why many stunning young Koi are not as attractive when they are slightly larger. Buying young fish from a known "high quality bloodline" usually means you are buying fish with more dense chromatophores, which results in the color remaining even when the Koi has grown.

In some varieties (e.g. Sanke and Showa) it is common for the pattern to change considerably as the fish grows due to the surface color fragmenting and revealing a deeper different color. When your Koi become very old they tend to become paler and in some cases turn white. This is the equivalent of our hair turning gray and cannot be reversed.

## **Changing Color**

A chromatophore is a branched cell, within which the color pigment can be moved. The two extremes are that the pigment spreads though out the entire cell (which results in the Koi being the color of the cell) or it is concentrated in one small spot in the center (resulting in the background color showing through - usually pale or dark). The distribution of this pigment is affected by a number of different factors including:

**Water Quality** - Different water quality conditions can have a major impact on the coloration of the Koi. Raised levels of pollutants (e.g. ammonia, nitrite or nitrate) will cause the pigment to contract, resulting in the Koi losing its color. pH and hardness affect coloration differently, red pigment tends to spread in softer, more acidic water, whereas black pigment spreads in harder more alkaline water and vice versa.

**Background Color** - Although it is difficult to merge into the background when you are a red and white Koi, they do try to do so. Against a pale background the Koi contract the pigment to make themselves as, pale as possible. The opposite occurs when the Koi is next to a dark background, which is why blue vats are used at Koi shows to ensure each Koi looks at its best.

**Treatments** - Salt is often added to Koi ponds as a treatment or to control nitrite toxicity, however, it causes the pigment to concentrate resulting in poorer coloration. The same is true for antibiotics, whether added to the water or injected and malachite green based remedies.

**Algae** - Koi (and goldfish) which have lived in an algae rich, green pond often appear intensely colored due to the color pigment spreading in the chromatophores. This effect can be recreated without the "green water" by using Tetra Pond Koi Vital.

**Temperature** - At high summer temperatures pigments contract; at cool autumn and winter values they expand resulting in the koi looking at their best in the cooler months of the year.

This list could be continued, but hopefully some of the examples my help to explain color changes in your Koi which you have observed. Unfortunately these things don't happen in isolation, making it very difficult to ascertain exactly what caused the coloration of your Koi, this can only be remedied by more people making more accurate records of the coloration of their Koi and what happens when conditions change.

## Twenty Disgusting Parts of Pond Keeping We'd Just As Soon Forget

*reprinted from Koi Club of San Diego Newsletter*

#1. The gunk at the bottom of the filter stinks. It's mucky, it's slimy and it smells like a stagnant pond. But plants love it because it's already pre digested for them and you are likely to have the greenest, healthiest garden in the block when you dump the muck on your garden.

#2. Pea Soup Green water is not very esthetic when you want to show off your fish. All a you can see are shadowy shapes moving through the water and you might as well own all white ogons as that expensive red and white kohaku or nifty brown chagoi if you can't see anything but pea soup murk. But the green water is actually quite healthy for the fish. It offends our sense of esthetics, means we cannot see the disease on the fish early, and creates a great deal of competition with the fish for the dissolved oxygen in the water. However, newly hatched fry thrive in it, it shades the water and keeps it somewhat cooler and it is definitely a deterrent to blue herons. What they can't see they won't get. The hardest bit about pea soup green is waiting long enough for the pond chemistry to balance, the filter to take charge and start breaking down the raw fertilizer the fish and their decomposing food create.

#3 The water in your pond is pond water. You do recall those fascinating biology slides in High School with all the unicelled organisms swimming around and eating each other? Guess what is in your pond water swimming around eating each other. But this is exactly what carp live in. The majority of those organisms eat each other, not the fish, some even provide food for the newly hatched fry or other things that provide food for the fish.

# 4. Nobody has a perfect pond and all the answers. Everyone will give you different answers for the problem you are asking you bout. If your fish are ill you can buy medicated food, make your own, inject them with drugs or dip them ahead of time for immunization. Which should you do? It depends who you talk to. The koi community is probably one of the friendliest groups you will encounter,

because although everyone has their own favored filter type, they are willing to share and demonstrate to you why that one is right for their situation, but might be wrong for yours. The answers are out there, as well as a lot of experience, some of which is bound to match yours and have a hard won answer to your problem.

#5. Koi are carp and carp, like puppies, eat what ever they can get in their mouths. Like protective of what gets available to them -- making sure guests and children don't dump their sodas in the pond or throw in copper pennies. But along with eating everything, it also means we can treat them with a varied diet -- the left over watermelon from the picnic, the half a grapefruit from breakfast, a quartered head of cabbage because it is so darn cheap at St. Patrick's day.

#6. The Spawning procedure is a very violent brutal experience. The males almost literally batter the eggs out of the female, leaving bruises on everyone who participates -- which is usually the whole pond. It is literally a dirty thing with the pond full of scum from the milt and the thrashing. Crystal clear water becomes murky with stirred silt. But the experience of finding a fingerling or two in the pond that you know you did not purchase and that turn out pretty nice makes up for the temporary dirty house.

#7. Fish are slimy. Snakes are smooth and dry and slick, but fish are slimy. When you catch them for the show or to medicate them, they are slick slimy wiggly creatures. But that slime coat is part of their protection and design. One of the indications of fish health is the consistency of the slime coat. Adding salt increases the slime coat on our fish and increases the fish's resistance to external parasites.

#8. Serious fish breeding means culling. Culling is sorting through the 250,000 eggs that hatch out of the 500,000 that were laid and fertilized and discarding the baby fish. But as cruel and inhumane as it sounds, culling insures the strength of the baby fish you do keep. You are initially discarding the deformed fish, then the ones with non desired color patterns. You are also ensuring that as those baby fish grow they have adequate space in which to grow and a better chance at the food. A pond that is adequate for twenty large koi quickly becomes inadequate for 100,000 baby koi.

#9. The pond is likely to contain all sorts of strange animal life right along with your fish. Leeches, anchor worms, fish lice, mosquito larvae, you name it. They're the big brothers to those unicelled creatures you looked at under the microscope. But most of those critters provide food for the fish or, if they are not eaten, are easily controlled with a dose of Dimilin before they get out of hand. Snails seem to come out of thin air whether or not you have introduced plants. Dimilin knocks them down as well, although the fish like escargot as well as they like caviar during spawning season.

#10. There are no guarantees in Koi keeping. That beautiful baby fish you bought that was a glorious platinum white and metallic yellow is as likely to fade to a dull white as he is to remain bright and exciting. Take note of the fish in the last KOI USA that was bought as a dynamite red and white kohaku, faded in poor water and was brought back again. But that rather strange little fish is just as likely to change into something really wonderful as it is to change into something ugly. "Tategoi" simply means "a fish with potential." Not "Instant champion, just add food and time."

#11 A properly set up pond will need constant upkeep and attention. But consider just why you put the in your pond in the first place. Attention becomes part of the pleasure of koi keeping. Would that all obligations were as onerous as sifting by the pond feeding the fish and observing them for a while each day, watching for disease and bruises and potential problems. A properly designed pond is like a good car, upkeep can be minimal most of the time with occasional major tune ups and filter changes once or twice a year, depending on the fish load.

#12 Fish die. Usually the one you are the most attached to, paid the most for, or was a special gift from a special friend. But please try and keep some perspective on the fact this is just a fish. An expensive fish, a beloved fish, but not a child. Your fish will not be covered by your HMO (and I've tried. It would be especially nice when it comes to medication) and most likely your vet will give you a polite turn down when you call him. Fish are remarkably hardy healing creatures, healing fins and sores frequently without showing a scar. And sometimes they die for no apparent reason (or from quite apparent raccoons or blue herons). There will never be one quite as special as that one, but please recall that koi, unlike Macaws, usually do not insult us by outliving their owners.

#13. Fish grow. Another unsettling fact for those who have stocked their pond to capacity with 8 inch to 15 inch fish in June and can't figure out why their pond is full of green water the following June after the winter. The more you feed Koi, the better the chances they will grow. Large. But unlike a house with too many children koi do not grow up and move out. You will have them with you forever. You can't abandon them along the side of a country road, you can't release them to fly away, they're your responsibility. Now they've grown and you've been both lucky and skilled enough that none died over the winter. Over crowded ponds are unhealthy for the fish and stunting to growth. Find a friend with a pond. Donate one or two to the meeting raffle. Support the Friends of Koi Auction in August with some "time to move on" fellows.

#14. Koi swim in their toilet. Yucch. But with an adequate filter system that toilet can be flushed and purified hourly or better. How fast does your pump recirculate the water? That toilet water (no pun intended, ladies) is the same stuff that is nourishing the algae on the sides of the pond that provides food.

#15. Algae is invasive. Pea soup algae, hair algae, velvet algae on the side, brown algae, scummy algae, all sorts of algae. A brand new pond will have no algae. Everybody else's has algae. But that algae, as with the pea soup clouding, is good for the fish. Hair algae is the fine stringy stuff floating out like hair in the water, attached to the sides, the filter inlet, the waterfall, everywhere. Koi generally don't get caught in it and it is easy enough to pull off with hands or pool scrubbing brush. The second year my pond was in operation I had a strong growth of the hair algae. I put up shade cloth, allowed the fish to grow (lots) and the next spring the hair algae growth was minimal. The koi ate the little that sprouted. They also snack on the velvety coating that is all over the side of my pond. Another reason I don't worry about them missing a meal as they have plenty of veggies.

#16. It is probably not possible to feed your fish without getting splashed. But a good deal of the pleasure of watching the koi is seeing their enthusiasm over food.

#17. Koi and plants mix with caution. But it can be done and done well. Koi, like pigs, like to root. They are not rooting to munch on your prize water lily roots, but they will break off the new growth and cloud the water with the disturbed soil. If you want to have lilies with your koi fill the top of the lily pot with large rounded river rocks that are too large for your koi to move. And keep your koi population down. Think about a marginal planting area where the fish are isolated from the plants by a barrier or dike of some sort, allowing the water to flow from the pond to the plants, but too shallow for the fish to navigate.

#18. Koi are expensive. Undoubtedly at some point the one fish that catches your eye will be more expensive than your house payment. But with careful shopping and a knowledge of what constitutes a good fish you can find smaller "tategoi" at a great price and have the pleasure of raising them to that larger size.

#19. No matter how large your pond is constructed, it's never large enough. It is a Koi enthusiast axiom that the minute the pond is finished and filled you want a bigger one, while you're planning the next excavation, you still have this one to enjoy.

#20. Truly disgusting is probably being able to tell your co-workers that you're going to HAVE to go home and talk to the fish, or spend your vacation watching the water lilies bloom. In these lazy summer days could a pond be any more irritating (to others) than that? Talk of relaxing and peaceful

### 2013 Koi Show Vendors



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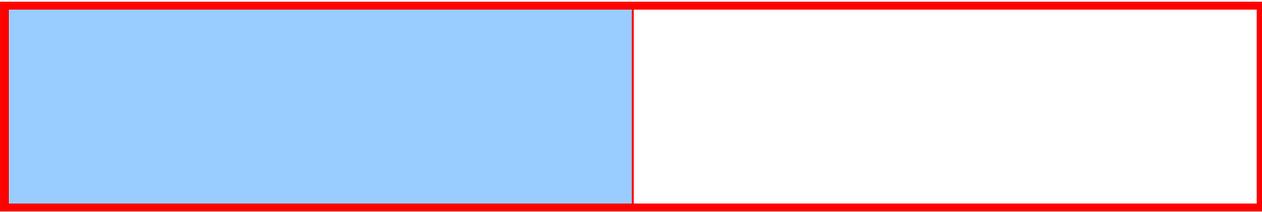
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KOI FOOD

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### Kawarigoi Korner



[Click Here](#) to see new items for sale on the SAKA Website.

If you have suggestions for the newsletter or items to be included in Karawagoi Corner or the Calendar, Please contact Brent VanKoevinger at 520.780.3980 or [bvankoevinger@longrealty.com](mailto:bvankoevinger@longrealty.com).

### Upcoming SAKA Education and Business Meetings

Date	Location
October 27	Dave and Debby Young
November	No Meeting. See you at the show
December	TBD

### Shows, Pond Tours and Seminars

Event	Dates/Location/Links
34 <sup>th</sup> Annual SAKA Koi Show, Auction and Vendor Fair	Kino Memorial Park. Ajo and Country Club. November 8-10.




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Today's Date: \_\_\_\_\_

# of Koi \_\_\_\_\_

Years Keeping Koi: \_\_\_\_\_

Pond size: \_\_\_\_\_

Would you like to host a meeting?  
 \_\_\_\_\_

Would you like to serve on a committee?

\_\_\_\_\_ If yes which one?  
 \_\_\_\_\_

**Make Checks payable to: SAKA, Inc.**

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