



***Mike and Carol Herndon's House
August 25***

Education Starts at 3:00

North on Oracle, stay to the right and continue on AZ 77 toward the town of Oracle, East on American Ave, South on Calle Fortune, which becomes Walnut. 400 Walnut Place, Oracle AZ

Please let Brent know if you are interested in hosting a meeting. We need a host for October.

SAKA, Inc Club Officers

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

Committees/Points of Contact

| | |
|--|--|
| 2013 Pond Tour | |
| 33rd Koi Show Co-Chairperson(s) | Brent VanKoevering bvankoevering@longrealty.com (520) 780-3980 |
| AKCA Representative | Debby Young debbyt@akca.org (520) 682-7697 |
| Newsletter Editor | Brent VanKoevering bvankoevering@longrealty.com (520) 780-3980 |
| Koi Health Advisor | Noel Shaw koifixer@yahoo.com (520) 400-0335 |
| Membership Chairperson | Faye Hall (520) 297-1253 |
| Education Committee | 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.

SAKA, Inc 10% Discount

With your SAKA, Inc Membership Card at:

Boyd Equipment Center

3625 S Country Club Road
Tucson, AZ
(520) 792-2244 or
1 (800) 844-2244

Mountain View Koi Fish & Aquatic Plants

3828 E. Keeling Road
Hereford, AZ 85615
(520) 378-3710

Oasis Tropical Fish

3865 N. Oracle
Tucson, AZ
(520) 408-9700

Patty's Water Plants

By Appt Only
E. Benson Highway, Tucson AZ
(520) 294-0748

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 VanKoevering if you are interested in hosting a meeting.

Club Announcements

Koi Meeting Minutes

July 28, 2013

Bob Panter call to order.

Correspondence: None

Treasurer Report: Checking \$13,607.05
Savings \$5,205.50

AKCA: No news

Show Committee: We have 2 vendors
Hampton Inn for the Judges has a free shuttle
Banquet site? Possible 4 Seasons?
Suggested we do a BBQ for Meet the Judges Dinner
Club members bring potluck for no costs.
One judge: Dale Ginerich
Second judge: I didn't hear name... sorry.
Security for the show may be covered.
Trophies: 32 needed, any ideas: ???
Other committee reports: None
Old Business: None
New Business: Do we have any scholarships? Not at this time.
Motion to adjourn: Seconded, moved.

Featured Articles

Water Quality

by Debby Young

Water quality is one of the primary factors affecting the spread of parasites and diseases. Many abnormal behaviors exhibited by fish can be attributed to poor water quality. Upon determining that your fish has a problem, the first thing to suspect is your water quality.

pH

Pure water is made up of millions of H₂O molecules. These water molecules are always in motion. Sometimes, a hydrogen ion (H⁺) will become separated from the water molecule leaving this hydrogen ion and the hydroxyl ion (OH⁻) to bond with other ions. pH is a measure of free hydrogen ions. At a pH of 7, considered neutral at 600F, there is 1 free hydrogen ion out of 10,000,000 (1/10⁷) hydrogen ions. Conversely, at this same pH there is 1 free hydroxyl ion out of 10,000,000 hydroxyl ions. Consider a pH of 8. Here there is 1/100,000,000 (1/10⁸) free hydrogen ions and 1/1,000,000 (1/10⁶) free hydroxyl ions. There is 10 times less hydrogen ions at pH 8 than at pH 7 and 100 times less free hydrogen ions compared to pH 6. All values above pH 7 are termed alkaline and all values below pH 7 are termed acid. Koi can live in a wide range of pH, but 7.2 to 7.8 is ideal. pH is the single most important water quality parameter. It can affect the toxicity and quantity of several of the other components of your pond water. To lower the pH of your pond you can add a water softener, try reverse osmosis, and decrease splash aeration by by-passing the waterfall. To raise pH increase splash aeration, add oyster shells, or lime.

Ammonia

75% of the total ammonia present in a pond is from one of the bi-products of fish respiration. Ammonium (NH₄⁻), is the ionized form of ammonia. If the pH of the pond water is acid, the ammonium molecule remains intact and non toxic. If the pH of the pond water is alkaline, the ammonium molecule releases one hydrogen ion and becomes ammonia (NH₃), the non ionized form. Ammonia is toxic to your fish. The amount of toxicity depends on how alkaline the water is. As pH increases above 7, the amount of ammonium transformed into ammonia is exponentially related to the

pH. Water test kits measure the combined total of ammonia and ammonium. A test for ammonia should always read 0.0 PPM. (See Chlorine/Chloramines for ammonia tests after adding a dechlorinator.) To reduce the toxic ammonia content, make a water change but be sure to add a dechlorinator, decrease feeding amount, add zeolite (never combine with salt additions), reduce fish load, add more filtration area, add a commercially prepared ammonia remover.

Nitrites/Nitrous Acid

Nitrite (NO₂⁻) is the by-product of Nitrosomonas bacteria breaking down ammonia in alkaline water. Nitrous Acid (HNO₂⁻) is the by-product of Nitrosomonas bacteria breaking down ammonium in acid water. These reactions are the first steps in the Nitrogen Cycle. There is again an exponential relationship with pH. As pH decreases below pH 7, the amount of nitrous acid increases and becomes more toxic. A test for these molecules should read 0.0 PPM. To reduce toxic nitrous acid, make water changes, reduce the fish load, reduce the feeding amounts or adjust the pH. Add salt at the rate of 0.2% to inhibit the intake by the fish of nitrous acid.

Nitrates/Nitric Acid

(NO₃⁻) (HNO₃) respectively are the molecular by-products of Nitrobacter Bacteria breaking down Nitrites and Nitrous Acid respectively. This is the second step in the Nitrogen Cycle. Unless found in large quantities, both are considered non toxic. To control the amount of nitrates and nitric acid, make water changes or add plants.

Water Hardness

Hard water is due to an abundant number of salts such as calcium and magnesium. Koi can cope with a wide range of hardness. There are two major benefits to having hard water in your Koi pond. First, very hard water can bind some toxic metals such as lead. Secondly, hard water reduces the workload of the koi for osmoregulatory functions. A reading of 0 to 75 PPM is considered soft, from 75 to 150 PPM is moderately hard, from 150 to 300 PPM is hard and above 300 PPM is very hard. If it is necessary to increase your hardness you can add crushed oyster shells, coral or any substance that will increase the amount of calcium.

Total Alkalinity/ Temporary Hardness

A large amount of bicarbonates in the water will result in a high Total Alkalinity reading. Also known as 'buffers', these bicarbonates dissociate and then combine with the Hydrogen ions produced by the Nitrogen Cycle and the other acids produced by the fish and organic decomposition. When Total Alkalinity is low, or is 'used', the water will become more and more acid. Combining a low Total Alkalinity with submerged plants or algae can cause a day time alkaline pH and a night time acid pH. This 'pH shift' is stressful to your fish and can lower their resistance to disease if the situation continues. Total alkalinity should be kept above 80 PPM to avoid these potentially dangerous shifts. To increase alkalinity, add sodium bicarbonate, change the water or add a commercially prepared pH Buffer.

Temperature

Water temperature has an inverse relationship to the amount of oxygen contained in that water. The higher the water temperature, the lower the oxygen saturation level. The 'saturation level' is the maximum amount of oxygen in water at a given temperature. Water temperature also affects the metabolic rates of the fish. Fish, being cold blooded, slow their bodily functions as temperature decreases. This affects all circulatory systems. If you need to reduce the temperature of your water you can add more shade, add a misting system, bypass the waterfall during the day and utilize the waterfall only at night. To increase your water temperature, add a heater, bypass the waterfall at night and reduce the shade.

Oxygen

Oxygen is needed for the normal day to day functions of a fish and by the bacteria necessary for the breakdown of the fish's waste products in the nitrification process. Factors affecting the amount of oxygen in the water are temperature, fish load, organic load, medications, and the turn over rate. All of these factors affect oxygen inversely except the turn over rate. Minimum levels of oxygen should be 5 PPM. To increase the oxygen content, add venturis, increase the turnover rate, reduce the organic load (rid the pond of any organic matter that is sitting on the bottom). Do not add aquatic plants, they will use oxygen at night.

Carbon Dioxide

A by product of respiration by fish is the bicarbonate molecule (HCO_3^-). When this molecule attracts a Hydrogen ion (H^+), it becomes carbonic acid (H_2CO_3) and drives the pH lower. Aeration causes the carbon dioxide (CO_2) part of the molecule to be stripped to the air and a hydroxyl ion (OH^-) remains. This by definition creates a more alkaline water. To decrease the amount of carbon dioxide, add plants or increase bubble aeration. To increase Carbon Dioxide, remove plants and decrease bubble aeration.

Chlorine & Chloramines

These chemicals are often added by water companies to make water more potable for human consumption. The toxicity of these treatments depends on the residual chlorine. Treated water will loose much of its chlorine by exposure to sun light and a time period of a few days. This is not the case for chloramines which are much harder to break down. Adding substances such as thiosulfates to bind the residual chlorine is recommended for any major water change. If you use tap water treated by these chemicals it is recommended that the residual should not be more than .003 PPM when mixed in your pond. Tap water treated with chlorine or chloramines should be added at the sump area or as far away from the fish as possible. After adding a chloramine remover, you must use an ammonia test kit that uses a Salicylate reagent and not a Nessler reagent or the ammonia test will continue to read the presence of ammonia even though it is now bound in a non toxic form and will be removed by the filter.

Toxic Metals

Most natural waters contain chloride, sulfate, carbon, calcium, magnesium, sodium and potassium. These ions serve a vital purpose in the mineral metabolism of all animals. If these ions are found in high concentrations, their toxicity is dependent on water hardness, pH, temperature and the presence of other dissolved substances. The solubility and toxicity of zinc, lead, aluminum and copper have a direct relationship to increases of pH and water hardness. To remove heavy metals, use activated carbon filtration, amquel® or aqua safe®.

Organic Compounds

Oil and grease, organic carbons, phenolic compounds, and detergents are included in this group. Much of the pollution from these organic compounds is due to runoff entering the pond. Make water changes.

Other Toxic Gases

Hydrogen sulfide is the result of anerobic bacterial action on organic matter in the pond. Ozone is being used to disinfect water in some areas. Make water changes and clean out the mulm under the filter or in the bottom of your pond.

Pesticides & Insecticides & Herbicides

These are usually introduced into the pond by runoff, precipitation or accidental spills. Make water changes.

Selecting a Young Sanke

by Dr. Arthur Lembke

Selecting a good sanke, when the fish are 4-8 inches in length, is very similar to selecting a good kohaku. The head of the sanke, as in all varieties of koi, is one of the most important things to look at. The head should be the exact same head as you would buy in a kohaku. There must be red on the head and the red should go down to the nostrils. The nose is better if it is white. One eye may be covered in red as long as the red is not over-powering. Red is too over-powering when it covers both eyes.

THERE MUST NOT BE ANY BLACK ON THE HEAD.

Next look for an interesting pattern of red all the way down the body. Do not pick a koi with only red on the front half or on the back half of the body. If you have followed the above steps, you will notice you now have a good kohaku.

Now we must add the black. It is best if the first black spot is on the shoulder (not on the head). If there is no black until further back on the fish, the head can look too elongated. The rest of the black further back on the fish should be in a nice pattern that is balanced and preferably in the white areas rather than on the red. Some black on the red pattern is alright but the more black in the white the better. The black spots are better if not much larger than a quarter and should not distract from the red pattern.

Modern sanke are basically kohakus with a few small black spots placed in the white field. Red should take up about 70% of the fish, the black about 10%, and the rest white.

At an early stage, look for a fish with a lot of interesting red and very little black. Black tends to come out later and if you start with too much black, the black may be too powerful later. The red may be bright red or orange-red because the red can improve with age. The white should be snow white or slightly pink white. Black develops later, so pick one with only a little black that is balanced now. Avoid any sanke that has a lot of small, black, peppery like spots. Pepper like spots can be a sign of poor quality.

The fins on the sanke should be either all white or white with black stripes. There should be no red in any of the fins. Be careful buying an early sanke with many black stripes in the pectoral fins. These sometimes develop too much black at a later stage.

Again, as in all koi, look for broad shoulders, large skull, and large pectoral fins for good growth potential. Make sure there are no defects or disease on the fish. Happy koi keeping.

2012 SAKA Koi Show Vendors



Mountain View Koi Fish
3828 Keeling Rd
Hereford, AZ 85615
520-3678-1271

GoldFishNet.com



水晶宮

Tommy Hui
A's Aquarium



Desert Rainbow
Koi Farm

Laurel Nason

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 VanKoeving at 520.780.3980 or bvankoeving@longrealty.com.

Upcoming SAKA Education and Business Meetings

| Date | Location |
|---------------------|---------------------------------|
| August 25 | Michael and Carol Herndon |
| September 22 | John and LaDoris Goudy |
| October 27 | |
| November | No Meeting. See you at the show |
| December | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Shows, Pond Tours and Seminars

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



Mail for KOI USA Subscription to
 P.O. Box 469070
 Escondido, CA 92046
 Or
 Subscribe on-line at
subscribe@koiusa.com
 Or
 Subscribe by phone at
 1-888-660-2073

For 1 year subscription (6 issues)
 ___ \$24.95US for any person in US or Canada
 ___ \$20.00US special price for AKCA Koi Club members

Club affiliation (for special price)

Subscribers' name _____

Subscribers mailing address

City, State, Zip

Phone number

Method of payment _____

___ Check made out to "KOI USA"

___ Visa or Master card

Expiration date _____ - _____
 Month year



<http://www.sakoia.org>
 Annual Membership

Dues are \$30.00 per family from March 1 to February 28 or 29 of the next year.

Membership Type

_____ Renewal
 _____ New Member

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Phone #: _____

E-mail _____

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.

Mail to: Martha and Dan Cover
 2841 W. Puccini Place
 Tucson, AZ 85741