



Dan and Martha Cover

2841 W Puccini
 Tucson, AZ 85741
 (520) 297-4071
Starts at 3:00

From Ina, South on Shannon, East on Puccini to Address

This is our Annual Holiday Party. Please bring the following:

If your last name begins with A-L. Bring a dessert

M-Z bring a salad or side dish.

Martha will be making a tortilla soup, so please bring something that complements that.

We will also be doing our regular gift exchange, so please bring a gift valued up to \$15. No dirty laundry this year please.

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

SAKA, Inc Club Officers

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

Committees/Points of Contact

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

Featured Articles

pH Crash, an actual occurrence

A pond owner has a 300 gallon plastic koi tank with 200 gallons water at about 65 degrees. In this tank are 120 small koi approximately 3 inches long. The system has two small pressure type filters, one is a bead filter and it feeds in series into an Ultima media filter, then the water flows back into the tank. The owner makes a major water change weekly, since in a week's time, the water is starting to show traces of ammonia. Below is the present situation:

He made a 50% water change on Friday. On Monday, the fish would not eat and he found two dead, so he checked for ammonia and nitrites and found no trace. He double checked the tests and again found nothing. He wondered what could have changed so quickly to cause the fish death and their lack of appetite. He used an accurate pH meter to check the pH and it was 4.4 !!! This told him that the water was too acidic for koi. He checked city tap water and it was pH 8.5. He made another 50% water change, started up the system so water will run through the filters and later checked pH again and found it was 7.4 after the water change. Next morning, he checked pH and found it to be 6.5 (Note that ok pH levels for koi are from 6.0 to 9.0. Lower or higher levels of pH can cause undue stress and/or death to koi.)

He then added some baking soda to the tank which brought the pH from 6.5 up to 7.9. He determined that something was making the pH go drastically acidic, and nothing was being put into the water to cause the increased acidity. He had not experienced this abnormal condition before. The owner called his club Koi Health Advisor (KHA) and told him the present situation and asked "Do you have any ideas what is causing this acidity?"

KHA Diagnosis:

This is relatively simple, the owner has a liner tank or some other inert material type tank such as polyethylene, plus the filters are made of inert material, plastics, etc. None of this material will affect the pH level. Then he has a too heavy biomass load (too many koi in the small tank) and probably is feeding them well so what happens is the bacteria in the biofilters are working to excess and are creating a lot of nitric acid, which is the by-product of their activity. This is causing the pH to crash. Low pH will keep happening until the owner puts something in the water on a constant basis to help maintain proper alkalinity. He needs something in the water to counteract the nitric acid, otherwise the pH will crash in less than 24 hours after raising it artificially. The tank system needs something to stabilize the pH and to maintain proper alkalinity.

The KHA suggested to initially add baking soda to the tank, and raise the pH level to around 7.0 to 8.0. Then make some "pH pills" out of plaster of paris and put 2 or more of these pills in the tank system daily and check the pH daily. Determine how many of these pills are needed daily by taking pH readings frequently. Without the addition of alkaline materials to the water to balance the acid produced by the bacteria in the filters, the system will keep having pH crashes. This is a lesson learned.

Don Harrawood

Understanding Pathogenic Bacteria

By Tom Holder

One of the most important things in keeping your pond and your fish healthy is understanding pathogenic bacteria. There are a wide variety of pathogenic bacteria that can infect your pond. By far the most common are *Aeromonas* and *Pseudomonas*. These two bacteria kill more koi each year than all the other pathogens combined. Understanding how these pathogens live, eat and attack your koi is vital to controlling them.

Aeromonas and *Pseudomonas* cause ulcers (also known as “hole in the side disease”), fin rot, mouth rot and tail rot. If left untreated the damage they inflict will eventually kill the fish. Many hobbyists believe that their ponds do not have either of these bacteria when their fish are not currently experiencing any of the above symptoms. This simply is not true. *Aeromonas* and/or *Pseudomonas* exist in almost every koi pond the world. You must understand that it is possible for koi to be around these bacteria and NOT be infected. Koi have a defense mechanism that helps protect them against these bacteria. This defense is made up of primarily their slime coat and their immune system. It is important not to have a false sense of security because all your fish appear healthy. This can change quickly. The big question is: How much *Aeromonas* and *Pseudomonas* can koi be exposed to without getting sick?

In 2000 when Koizyme was first introduced to the koi hobby, many hobbyists and dealers conducted their own tests to verify Koizyme did what it claimed. Most of these people were kind enough to share their test results, as well as information on the condition of their fish at the time of testing, with Koi Care Kennel. Conducting these tests were relatively simple. A sample of pond water prior to dosing with Koizyme was sent to a lab to determine how much *Aeromonas* and *Pseudomonas* was present. The pond was then treated with the five initial treatments of Koizyme. Once these treatments were completed, another pond water sample was sent to the lab for testing. A comparison of the ‘before’ and ‘after’ test results verified a significant reduction in *Aeromonas* and *Pseudomonas*. At Koi Care Kennel we reviewed test results from around the country and found some most interesting information. One pond that was tested had 22,000 C.F.U.’s (Colony Forming Unit) of *Aeromonas* prior to dosing with Koizyme. Most of the fish were experiencing various degrees of ulcers or fin rot. In this particular pond 22,000 C.F.U.’s of *Aeromonas* were enough to cause problems in the majority of the fish. Another pond tested had 86,000 C.F.U.’s of *Aeromonas* prior to dosing with Koizyme. All the fish in this pond were healthy with no signs of ulcers of any kind. From this example, it can be seen that there is no set level of *Aeromonas* that will cause ulcers. Other factors can enter in to the picture here, such as the virility of different strains of bacteria, etc., however for the sake of simplicity, what is most important to remember from this discussion is that the overall health of the koi plays a huge role in how much pathogenic bacteria a fish can be exposed to and not get sick.

In an effort to help you manage *Aeromonas* and *Pseudomonas* in your pond, I have come up with some terminology that will hopefully help you to visualize the relationship between pathogenic bacteria and koi health. Let me emphasize that this is NOT some scientific theory based on mounds of research, but a simple explanation meant to help the hobbyist understand some basics.

If you had your pond tested for *Aeromonas* and *Pseudomonas*, you would get back from the lab a C.F.U. count telling you how much pathogenic bacteria was in your pond. Imagine this number as a RED LINE representing the pathogenic bacteria level in the pond posing a threat to the fish. As mentioned earlier, fish have a defense mechanism against pathogens. Each fish has its own individual tolerance level to the RED LINE based on the condition of its slime coat and the strength of its immune system. Now take a number of C.F.U.s that represents the highest level of pathogenic bacteria that an individual fish can be exposed to without getting sick. Imagine this number as a BLUE LINE. To have a totally healthy pond with no sick fish, each individual koi would have a BLUE LINE higher than the RED LINE of the pond. For example, if an individual koi had a BLUE LINE of 25,000 C.F.U.s (the highest level of pathogenic bacteria he could withstand without exhibiting symptoms) and the pond’s RED LINE was 18,000 C.F.U.s, the fish would remain healthy and safe. On the other hand, if this individual koi’s BLUE LINE was 15,000 C.F.U.s, it would be sick because it could not tolerate the 18,000 C.F.U.s in the pond.

Let me give you a classic example of how this relationship works. This example may also help some koi dealers and hobbyists the next time a dealer is blamed for selling a “sick” fish. A hobbyist we’ll call “John” has had his pond for some time and for the past three years all his fish have been healthy with no infections or problems. John decides it is time to finally go out and buy that special show quality koi he has always wanted. He visits his friendly koi dealer, looks around and sees nothing but healthy, beautiful fish. He feels confident in spending the money for the koi he has always wanted. He buys it, takes it home, and quarantines it for three weeks. Lets say he even treats it for parasites and flukes during the quarantine period. At last, he puts it in his pond and it gets sick with ulcers and fin rot. How many times have you heard John say it was the dealer’s fault. John’s collection has been healthy for the past three years. His pond is not the problem, just look at his healthy fish.

Lets take a look at what could have happened:

John’s pond had a RED LINE of 40,000 C.F.U.s. All his fish were healthy. They had BLUE LINES of lets say, 45,000 C.F.U.s.

Now, lets look at the dealers pond. He works hard to keep his ponds clean and healthy. When tested, that show tank had a RED LINE of 10,000 C.F.U.s. The fish John bought had a BLUE LINE of 20,000 C.F.U.s. It was healthy in that show tank when it was sold. But what happens when that fish with a BLUE LINE of 20,000 C.F.U.s is put in a pond with a RED LINE of 40,000 C.F.U.s? It gets sick because it cannot tolerate that level of bacteria.

Obviously, this scenario does not pertain to sick fish being bought and sold. But it is easy to see what can happen with the red line and blue line when moving fish from one pond to another without knowing what the RED LINE value is in each of the two ponds. Even if you did know the pathogenic bacteria levels in the two ponds, it how do you determine the BLUE LINE of the fish being moved. What can you do?

Fighting the battle on two fronts

Keeping your koi healthy and your pond healthy is a battle. And it is a battle you want to fight on two fronts. On the first front you want to work on lowering the RED LINE in your pond. That is, you want the pathogenic bacteria level as low as possible. You do this by focusing on good mechanical filtration to remove the koi waste as quickly and as thoroughly as possible. Use Koizyme to combat the proliferation of Aeromonas and Pseudomonas. At the same time you want to work on the second front, raising the BLUE LINES - the ability of the fish to tolerate pathogenic bacteria. This means raising the overall health of your fish, and strengthening their immune system. To accomplish this, water quality must be kept as high as possible. Check ammonia, nitrite and nitrate levels keeping them within acceptable limits. Do periodic major water changes. Diet is very important to the overall health of the fish. They are what they eat. Feed a quality staple food, and vary their diet. Feed collard greens, kale, romaine lettuce, citrus fruit, watermelon, and defrosted frozen peas. Adding a paste food as a way to get extra vitamins and fatty acids in your kois diet is always a good idea. See our website for a paste food recipe that the fish love! (www.Koizyme.com)

Another factor that can dramatically affect the relationship between the RED LINE and the BLUE LINE is parasites. In fact, it throws the red line/blue line relationship right out the window. Parasites can bore through the protective slime coat of the fish allowing any existing opportunistic pathogenic bacteria to cause ulcers regardless of the BLUE LINE. Even with an extremely low RED LINE in your pond, the moment parasites are introduced, secondary infections from the existing pathogenic bacteria, no matter how few, can occur. Keeping your pond parasite free is critical to maintaining healthy fish.

It is easy to assume that when ulcers develop, an Aeromonas problem exists. However, if the pond is well maintained and the fish are well cared for, parasites could very well be the problem. A microscope is needed to confirm the presence of parasites. If you don’t yet have a microscope, you really ought to get one. It is a necessary tool in the koi hobby. Check with your local koi club to see if you can get a member with a microscope to help you take a scraping of your koi. If you don’t have access to a microscope, then it may be a good idea to treat for parasites anyway. Use a safe and effective parasitic treatment such as PROFORM-C. This product can be used in water temperatures as low as 50 degrees (F).

Ultimately, the main goal is to get the RED LINE as low as possible and the BLUE LINE as high as possible. Good mechanical filtration to remove koi waste and the use of Koizyme is the most effective way to lower the RED LINE in your pond. Raising the BLUE LINE of the fish is achieved by giving attention to providing a healthy diet and insuring the best water quality possible. Keep in mind stress will lower the BLUE LINE of a koi quickly, and remember that as the seasons change and water temperatures fluctuate, the koi’s immune system

is affected, thereby lowering the BLUE LINE of the fish as well. The bigger the margin between the RED LINE and the BLUE LINE the better the chances the fish have of staying healthy.

You can win the battle against pathogenic bacteria if you fight the battle on BOTH fronts .

2013 Koi Show Vendors



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[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 VanKoevering at 520.780.3980 or bvankoevering@longrealty.com.

Upcoming SAKA Education and Business Meetings

Date	Location
December	Dan and Martha Cover
January 27	
February 24	
March 24	
April 28	
May 26	
June 23	
July 28	
August 25	
September 22	
October 27	
November	No Meeting. See you at the Show

Shows, Pond Tours and Seminars

Event	Dates/Location/Links



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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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 2841 W. Puccini Place
 Tucson, AZ 85741