



Koi Ahoy

August 2007

President's Message—*Ellen Evans*

It's here, it's here! Auction time, that is. My fish load is definitely too big after a summer's worth of growth, and I am unloading 4 of them at this month's auction. I may be president, but I am still eligible for the prize of a waiver of the \$40 entry fee at the September show if one of the fish I bring sells for the highest bid. Of course, if I buy the fish that sells for the highest bid all day, I'd also be eligible. However, as my pond is bursting at the seams, I do not think I will be acquiring any new fish that day. But I encourage newer members with far emptier ponds looking for bargains on large and beautiful fish to come prepared to bid. There is a small donation to the club to purchase a bidding paddle (\$5, I believe). Fifty percent of the money raised from selling your fish goes to the club and you get to keep fifty percent. That's right, this is your chance to recover some of your expenses from your spring buying binge. Finally—an opportunity for this hobby to put some money back *in* your pocket for a change!

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Another reason to come to the August meeting is the excellent food that will be served at the club potluck. Of course, this means that instead of the usual "snack", we encourage you to bring more of a "dish" instead. August is generally the culinary highlight of our monthly meetings, although I hear rumor of a tasty spaghetti "feed" in Lodi at our October meeting. But for delicious *catered* food, don't miss the Saturday Night Koi Show Banquet (details on p. 5). This event celebrates all the hard work the club puts into the show, honors the judges, and should be lots of fun for all. It is *the* CKC feast of the year--like the holiday dinner or the pot luck, but easier to fit into everyone's schedules and with fancier, catered food! The menu sounds delicious and Georgia Vonk is to be thanked for organizing everything. Please don't miss this and come enjoy the company of your fellow club members! I would pay \$35 for the build your own ice cream sundae bar alone.



This 1 year old 8" Hiroy Goshiki (that's right, he's not a Goromo) will be for sale at the club's August Auction.

This month, Variety Profiles will take a vacation. I am busy with koi show preparations (program assembly, show pin and T-shirt design, etc). And I have already let Garry and Steve know how else I can help out at the show. Have *you?* We also have a few non-show volunteer opportunities available including a work party before the August meeting and a table-sitting opportunity in October (p. 2). As there was no BOD meeting in July (swapped out in favor of Koi Show Committee meeting), there are no minutes to report in this month's newsletter. I did reprint a honkin' big article from AKCA's library on catching and moving koi (relevant for koi auction and koi show!). Be sure and read the posted changes to the club by-laws again, as we will be voting on the changes at the meeting.

**SACRAMENTO COMBINED KOI SHOW UPDATE—Steve Eckard**

There are only six weeks left until this year's show. The show committee has been working to finalize the events we have planned for the show. Show set-up begins on Friday September 21 at 8 A.M. We need all of the help we can get. We will need people to help with layout and set-up of the indoor vendor booth areas. Plus with the show arena and wet vendor areas being outside this year we will need more folks to help in those areas.

Jim Phillips along with his two straw bosses, Heather and Kirk, will be on hand to guide us to the tasks that need to be done. Layout will be a bigger challenge this year, as we will have to measure and mark the show arena as well as the wet vendor booth area. The indoor vendors will be easier as we can more fully rely on the folks who will be setting up the rented drapery to finalize the layouts.

Saturday, the club will need people to staff the club booth. This is a very important part of our show. The booth is set-up in the main entrance to the hall and is the first thing visitors will see as they enter. We need folks to answer questions about our club, ponding in general, help with raffle ticket sales, and answer any questions about how the show works.

Saturday evening is the banquet. Georgia has put together an event that should satisfy everyone's hunger and provide a great atmosphere for the slide presentation of the show. However, we need you to make your reservations now. There is a reservation deadline that the club has to meet for a final count. Everyone should have received the notice and banquet reservation form in Ellen's email of August 11. If you did not receive that notice please contact one of the show committee and we will see that it is re-sent to you.

Sunday is when we will need your support during clean up of the area. With 40 tanks to clean and dry the more hands we have the faster we will finish. This is extremely important this year as the show area and wet vendor area are outside and the lighting will not be as bright as it is indoors. So please folks, we can use at least 20 people to help with clean up.

The club will provide lunch and supper if needed on Friday and lunch and supper on Sunday for all workers.

We have either paid vendors or verbal commitments for 25 booths at this time. This does not include the two bonsai clubs that will enhance the show experience. It just seems that bonsai and koi go together. I am excited about the clubs offering to display their efforts and enjoy their presence.

The entrant packet is now available. The show committee wants you, our club members, to bring your fish to the show. The cost for showing is a single fee for the tank. This fee helps cover the cost of the facility rental. We hope by lowering the tank fee and eliminating the fee per fish that we will entice more of you to show. If anyone is a first time participant or even a veteran and you need help in learning how to transport your fish, please ask. There are many club members who will willingly help you through the process.

I will see you all at the August meeting and at the show.

"If anyone is a first time participant or even a veteran and you need help in learning how to transport your fish, please ask. There are many club members who will willingly help you through the process."

**PRE-MEETING WORK PARTY AT AUGUST MEETING!**

The floor and shelving of the new trailer are completed. Now we just need to move all our stuff into it! This will also be an opportune time to complete a thorough inventory of club belongings and their condition. Please contact Jim Phillips and our host Mary Beth Avila (whose phones/emails are on the last page of this newsletter) and let them know you can help. They will let you know how early to show up. You will be rewarded with a delicious potluck lunch at 1:00!

VOLUNTEERS NEEDED FOR CLUB TABLE AT OCTOBER EVENT!

Our club has been invited by the Chair of Environmental Horticulture of Sierra College to set up an informational table at Golden Pond (Loomis, CA) for the Farm and Barn Tour, October 14 (10am—4pm). Sue Golden has worked with Pauline Sakai to promote our club's pond tour in the past, and this would be a way for us to promote the club at another organization's event. We are looking for a 2-4 members so that they can be broken into shifts and so that more than one at the club table make for more fun! You would just have to help distribute club and koi information (fliers, etc) and answer questions about koi. For more information and to volunteer, contact Pauline Sakai, sakaip@surewest.net.

PROPOSED CHANGE TO CLUB BY-LAWS

The Board of Directors reviewed the club by-laws earlier this year (available in full at the members-only section of www.camelliakoi.org) and would like to make a few changes to Article XII—Authority to Spend Club Monies. Proposed changes are as follows and ***will need to be approved by more than 50% of members present at the August meeting:***

Article XII, Section A—Currently grants the president the authority to spend up to \$100 of club fund for club purposes *per event or project* without further permission from the club or BOD. ***We would like to increase this amount to \$250. The \$100 amount dates back to the original by-laws and these days just doesn't buy as much as it used to.***

Article XII, Section C currently reads "All expenditures of club funds exceeding \$500 shall be approved by club membership by majority vote of members present at any regular club meeting. A vote authorizing the expenditure of club funds may only be brought to the membership by the Board of Directors following a majority vote of the Board. Applications to spend club funds in an amount over \$100 shall be made to the Board of Directors."

The Board feels the final sentence of this section is unclear and confusing, and implies that anyone in the club can spend less than \$100 of club money on club projects without asking anyone for permission. This is not the case. We would like to change the last sentence to read "Applications by club members to spend club funds for the club shall be made to the Board of Directors."



CKC ANNOUNCEMENTS

KOI SHOW VOLUNTEERS

The Volunteer sign-up sheet is now posted online and paper versions were sent out to our paper newsletter subscribers last month. Please contact Garry Chin at scvkoi@yahoo.com or (916) 922-2525 and let him know how you would like to help this year.

RAFFLE & KOI STORE VOLUNTEERS

Bring your old KOI USA magazines (or other koi publications) to the August meeting for Jerry to collect for the club store. We will sell them at the club both at the show. These interesting magazines encourage others to look at our hobby and look at our club. Also look in the closets for that nice gift someone gave you last year that you have not and will probably never use. Koi related or not, someone will treasure it if you give them a chance by bringing it to the meeting for use in our show raffle. Last year's raffle was a huge success only because so many members helped by contributing something. Thank you all.

Contact Jerry at jeroldkyle@yahoo.com if you have any questions or to alert him to something you'll be donating. Again, if you bring your donation to Jerry at the August meeting, it will save him some gas money driving around to collect donations!

Still need meeting hosts for: NOVEMBER 2007 & Jan-March, June-July, Oct-Nov 2008.

CLUB TREASURY

END OF JUNE BALANCE =	\$6567.77
INCOME:	\$2,225.00
EXPENSES:	(\$2,114.94)
BALANCE END OF JULY	\$6,634.61

POND TOUR 2008 SIGN-UP & POND SOLICITATION

We need volunteers for the pond tour committee. The committee is involved in soliciting/selecting ponds for the tour, tour organization, publicity, sponsorships, and recruiting volunteers from the general membership for tour duties. If you would like you pond to be on the May 2008 tour, email Ellen so I can begin to compile a list of potential ponds for the committee.

KOI AHOY AD RATES

If your business would like to advertise in our newsletter, our rates (per month) are:

- \$25 for "Business Card" sized ad
- \$50 for 1/4 page
- \$100 for 1/2 page
- \$200 for full page



Please get your checks for this in to Carolyn ASAP! Now accepting online payments from CKC website's Koi Show page... Or pay in person at August meeting.



Sacramento, CA.

2007 SACRAMENTO KOI SHOW BANQUET

Saturday, September 22, 2007

5:30pm No Host Bar
The Clubhouse at Woodcreek
5880 Woodcreek Oaks Blvd
Roseville CA 95757
916-771-4676

6:00pm Buffet Dinner includes:

Tri Tip
Salmon
Three Cheese Tortellini
Spinach Salad, Herb Roasted New Potatoes and Rolls & Butter
Non-alcoholic beverage
Build Your Own Ice Cream Sundae Bar
For the Wine Connoisseurs, corkage is \$8 per bottle

Dinner Reservations

Name: _____

Telephone Number: _____

e-mail address: _____

Reservations for _____ @ \$35.00 per person Total Enclosed \$ _____

Make Checks Payable To **Camellia Koi Club**, and *mail to no later than September 10th to.*

Sacramento Koi Show Banquet
881 Greenridge Ct.
Lincoln, CA 95648-8316



JULY MEETING PHOTOS—*Diane Coit & Gary Fabian*



Our July meeting was at the Sacramento home of Diane Coit. Above, Diane shows her pond off to Duane Carlson and Heather Marshall.



Right, President Ellen Evans presents KHA Jason Sargeant with his AKCA Koi Person of the Year certificate. Congratulations once again, Jason!



Above, Diane will be featuring these beautiful fish of hers in media publicity for the club's koi show.

Right, Kirk Evans and Steve Eckard spoke about the importance of pond aeration and the impact a power failure can have on your pond.





*Reprinted from AKCA library

KOI TRANSPORTATION

(HOW TO MOVE KOI FROM HERE TO THERE)

By Gene Ewy MD

KOI ISOLATION AND HANDLING

When a koi hobbyist wishes to closely inspect or move koi from a koi pond, the specific koi must be isolated and guided into a suitable container. A good quality koi net with knotless fine mesh and the circular frame totally covered is recommended to minimize the risk of damage to the koi. The bay depth should be shallow. The koi net should be as large as possible (depending on the size of the koi) though larger nets are more difficult to move through the pond water, particularly if the net has a telescopic handle and it is extended.

Take it easy. Don't get the koi or yourself agitated. Don't agitate or stress the remaining koi. It's risky to approach the koi from its tail since the caudal fin may be damaged as the koi responds vigorously to the net touching its tail. Minimize net contact with the koi. Ideally approach the koi from the front getting the net under its head and gently guiding it into a floating tank or tub.

One advantage of the koi net is that a single person can guide the koi into a floating tank. The rim of a large koi net (guiding a koi to the floating tank) is used to submerge an end of the floating tank. The koi is then guided into the floating tank. This maneuver is easier if a second person appropriately submerges the tub or floating tank. A single individual can also bring the koi in the net adjacent to a floating tank or tub. The net is controlled with one hand which has been advanced on the pole to a position near the net. The floating tank or tub is submerged with the other hand and the koi is gently guided into the container. Don't lift koi from the water with the koi net, particularly.



Koi can be collected from a smaller pond readily in the manner described with a koi net. A telescopic pole will allow the net to isolate koi in a larger pond. If this is not practical consider PTTN - patience, time and two nets. The second koi net handler gently guides the selected koi into the koi net of the primary handler who guides the koi into the tub or floating tank.

If your pond doesn't lend itself to any of the above methods, a seine may be used to partition the pond into areas from which the koi may be collected. The mesh of the seine should be knotless. The seine should be longer than the width of your pond. The width of the seine should be greater than the depth of the pond. The seine should have floats at the top and weights on the bottom. Koi are not lifted with the seine.

KOI HANDLING - SHORT DISTANCE MOVES

The koi that have been isolated and guided into a container are ready to be moved. This can be accomplished in a number of ways. If the koi is in a tub in the pond with enough water in the tub to cover the koi the tub containing the koi can be lifted from the pond. The tub or any other container in which a koi



is being carried should be covered. A mesh cover, a solid cover or plastic begs on the surface of the water can be used. The container with koi can be carried by hand, placed on a cart and wheeled or the container itself may be on wheels. The koi should be transferred promptly to the destination water (isolation tank, show tank, etc.).

Koi sock nets are open ended fine mesh nets attached to a circular covered frame with a relatively short handle. The net is much longer than the diameter of the opening (42 inch sock net with a 10 inch diameter opening as an example). The koi is brought through the opening of the net head first by carefully advancing the net over the head of the koi or by manipulating the head of the koi into the net with your free hand. The koi is positioned in the body of the net, the end of the net is closed by one hand of the holder, the other end of the net is folded over to retain the koi the hands are held tautly apart as the koi is lifted from the water and transferred hopefully for only a -short distance. A head first exit of the koi from the sock net is preferred to avoid unlikely but perhaps possible fin or scale damage. Some mucus may be lost from the skin. This is a safe method to move koi short distances.

I prefer to use plastic bags for most short distance moves. Double plastic bags (one bag inside another) should be considered particularly for larger koi for safety. Three mil and four mil bags are quite strong. Bag size depends upon the size of the koi. Fish should be carried horizontally. Small fish may be carried in the small end of the plastic bag with the bag held upright, large koi may need to be carried with the bag horizontal and held tautly between both hands. The largest koi may need to be carried by two handlers. The top edge of the plastic bags should be rolled over. This results in a large relatively fixed orifice which frees one hand that can be used to direct the koi head first into the bag. Some pond water should be in the bag when the koi is gently introduced. There should be enough water in the bag to cover the gills of the koi as the bag is carried to its destination. A head first exit from the bag is ideal but I think the smooth plastic surface allows a tail first exit with negligible risk if done carefully. If the opening into the bag is large enough the koi can be lifted out by hand. For a short move without adding transfer water to the destination tank consider transferring in a plastic bag with a corner cut out to drain the water.

I have noted from a UK publication (Koi Health Quarterly) an instance of a torn plastic bag from the dorsal fin of a koi. From both a UK publication (Koi Kichi) and a Japanese publication (Rinko) recommendations are made to remove a palpable 'hook' on anal fins of large koi which might tear a plastic bag. If this could happen it would be an added reason to double or triple bag large koi.

Moving koi by hand is best reserved to transfer koi from one container to an immediately adjacent container. Koi have a slick slime coat, they may be quite active and they can be dropped. Dropping koi is not recommended. The handlers hands should be thoroughly wet. No hand jewelry should be worn. The koi may resist movement in a direction it is not going and become agitated.

If it is difficult to place your hands under a larger koi in the proper position for support of the koi during transfer, consider taking advantage of temporary disorientation produced in the koi when rotated in a clockwise or counterclockwise direction for a few turns. If going clockwise the handler should place his right hand across the left head and shoulder area and support the under surface of the koi just back of the head with his right hand when the koi is facing at eleven or twelve o'clock. Continue the clockwise rotation with the right hand, place the left hand under the posterior aspect of the koi when the head is at



four to six o'clock. Lift the koi from the water. Bring the head close to your body for control, move your hands with the koi if it moves as you deliberately and promptly transfer the koi to the immediately adjacent container.

PREPARING KOI FOR TRANSPORTATION

Stress during koi transportation should be minimized as much as possible. Stress may lessen the effectiveness of the koi's immune system. The possibility of infection or other health problems which could be transmitted to other koi in your pond is enhanced.

Koi should not be fed for at least three days and possibly seven days before transport. The production of ammonia during transport is reduced and the transport water is not polluted to the extent that it would be had the koi been fed during this fasting period. Koi may be eating algae from the pond wall during the period when they are not fed.

If an isolation tank with adequate water volume and an active biological filter is available the koi could be in this tank at least during the last part of the fasting period. Additives to the isolation tank water could be salt, mineral salt or various medications. Be accurate. Do not over medicate. There will be less stress when the koi is in a dark environment during transport. Transport water can be cooled to reduce metabolism. Mild sedation could be considered.

LONG DISTANCE TRANSPORT

In general koi may be transported for long distances and many hours safely in plastic bags or in rigid containers, The development of the plastic bag had an immense impact allowing safe worldwide koi transportation.



TRANSPORTING KOI IN PLASTIC BAGS

It's time to get physical again. We're going to put our koi in plastic bags for transport. There is a wide choice in bag size and thickness. The bag should be longer than the rectangular corrugated cardboard koi box or any other container into which the bag will be placed. This allows secure closure of the bag using most of the length of the box. Double plastic bags should be used putting one bag inside the other. Large koi transported long distances by airplane within the USA or from overseas may be within the inner bag of 3 to 5 bags. It is helpful to roll the mouth of the bag down before placing koi in the plastic bag. This produces a relatively fixed opening and keeps water from going between the bags. Put some water from the pond or water prepared specifically for the transport into the bag. The koi is put into

the bag by hand transfer or by using your free hand to direct the koi into the bag. Usually only one koi 18 to 20 inches in length is placed in a bag, perhaps two 15 to 18 inch koi are placed in the saw size bag, etc. The gills should be covered with water, I prefer to add enough water so that the koi can float, not rest on the bottom of the box.

Some hobbyists and dealers put additives in the transport water. This includes such things as salt, mineral salt, antiparasitic medication, antibacterial medication, etc. If you choose to do so, do not overdose. Prepare the transport water accurately and add it to the bag. Transfer the fish into the bag by hand, sock



net, or bag with a corner cut out to drain the pond water from the bag so that minimal pond water will be added to the transport water. The transport water will not be significantly diluted. The bagged koi is placed in a corrugated rectangular koi box, styrofoam box, polystyrene box, ice chest, etc. The length of the box is usually about two times the width or height. The width and height are normally similar. Newspapers are often placed in the bottom the koi box primarily for insulation. I won't say that Japanese newspapers are best but the koi I have received directly from Japan have been calm and happy.

Look closely at the bagged koi in the transportation box. If water needs to be added or removed, do so. Remove all air from the bag by carefully compressing the bag down to the water level. Pleat the plastic bag near the mouth of the bag so no air reenters the bag. Insert the hose from the regulator (attached to an oxygen cylinder) through the mouth of the bag. Slowly fill the bag with pure oxygen to about three fourths full and withdraw the hose. Twist the neck of the bag so no oxygen escapes. Fold the neck of the inner bag over and secure it with rubber bands tightly placed over the folded neck. Use two rubber bands for safety. Seal the outer bags in sequence in the same manner. Insulating material (usually newspapers) is placed over the bag in the box and the box is sealed.

If one wishes to gradually lower the water temperature in the bag during transit, place frozen reusable freeze packs on top of the bag before adding newspaper insulation. Support the bottom of the cardboard box when it is being carried.

Place the transport box or other container holding the bagged koi in the transport vehicle sideways to the travel direction. Braking during transit would then move larger koi sideways and would not bang their nose against the end of the box. The risk of injury is reduced. The transport box must be secured so it does not move during transit.

MOVING KOI IN TRANSPORT TANKS

The other method of moving koi long distances is in transport tanks. Many varieties of tanks are used: 1) flexible liners such as vinyl coated industrial fabric liners in a rigid frame made from PVC, tubular steel or other material, 2) polyurethane tanks, 3) fiberglass tanks, etc. The tank must have a secure cover to retain water and koi. The zippered covers with vinyl tanks allow easy closure and easy access. The size of the tank is determined by the type of vehicle and the amount of weight that can be carried safely in the vehicle. Water weighs over eight pounds per gallon. There are seven and a half gallons in a cubic square foot of water. My transport tank for a station wagon measures 3 foot by 4 foot and is just over 19 inches high. Usually we carry 10 inches of water which is 75 gallons weighing 625 pounds. Obviously transport tanks in trucks can be much larger, carrying more water and fish. All tanks must be stabilized so they will not shift during transport. The transport tank water should be oxygenated before koi are added and the dissolved oxygen in the water should be maintained at about 9 parts per million or over. Pure oxygen can be diffused into the water easily using an oxygen tank with a regulator through an air stone or a fine-pore diffuser for pure oxygen. The advantage of a fine-pore oxygen diffuser would be a smaller bubble size (approximately 0.5 to 2 mm diameter) which would increase the total surface area per unit of oxygen. Oxygen saturation is maintained with a slow flow rate. This system is used world wide with great success.

Air, which is 21% oxygen, can be introduced into the water through an air stone (approximately 1 to 3 mm diameter bubble size). The flow rate would have to be significantly higher than the flow rate of pure



oxygen to maintain the same oxygen level in the water. The source of the air could be from a 12 volt portable piston or diaphragm compressor operating from the car or truck battery during transit. An adapter from the cigarette lighter socket is used. If the tank is to be aerated for some time when the power source is not from the vehicle's 12 volt battery, a 12 volt marine or deep cycle battery (larger capacity) could be used as the power source.

Members of the Louisville koi club have developed and used a nice transport tank system utilizing a 12 volt submersible bilge pump which pumps about 500 gallons of tank water per hour through a spray bar for aeration. They have kindly shared this system with a number of koi hobbyists.

OXYGENATION TRANSPORT TANK VERSUS CLOSED BAG

Multiple methods of aeration or oxygenation provide excellent levels of dissolved oxygen in the transport tank water. Overall, pure oxygen from an oxygen tank with a regulator for fine control of the flow rate is favored. One advantage of this system of oxygenation is that the flow is quite gentle and minimal carbon dioxide (from the koi's respiration) is blown off so the pH does not rise. pH is a measure of the hydrogen ion concentration in the water. The higher the hydrogen ion concentration the lower the pH the more acidic the water. A change in pH from 8 to 7 reflects a 10 fold increase in the hydrogen ion concentration. A change in pH from 8 to 6 reflects a 100 fold increase in the hydrogen ion concentration. The pH can increase with vigorous aeration as carbon dioxide is blown off. With the more alkaline water more of the ammonia would exist as unionized ammonia which is toxic. In a closed bag system with pure oxygen in the bag, dissolved oxygen levels in the transport water remain high. I have measured dissolved oxygen levels in this closed bag system after fifteen hours in transit. The oxygen saturation was 16 to 18 ppm, much above the 8 ppm needed for good aeration.

ASPECTS OF AMMONIA

Let's consider some aspects of ammonia as it impacts koi. It is a normal product of protein metabolism in koi. It is excreted primarily through the gill - about 75%. It is potentially toxic and may cause death. Unionized ammonia (NH₃) at 0.1 parts per million can be lethal. Now, here's the good news. Unionized ammonia reacts with water to produce ionized ammonia (ammonium) and hydroxyl ions.

$\text{NH}_3 + \text{H}_2\text{O} = \text{NH}_4 + \text{OH}$ ionized ammonia (NH₄) is nontoxic.

Ammonia toxicity is strongly dependent upon pH. Decreasing the pH (solution more acidic) has by far the greatest effect on decreasing the proportion of unionized ammonia in solution. The above reaction is driven to the right by decreasing the pH. A greater proportion of the total ammonia exists as ionized ammonia (NH₄) which is nontoxic. At 50 degrees Fahrenheit and a pH of 7 only 0.2% (1 part out of 500) of the total ammonia exists as toxic unionized ammonia. Ammonia toxicity is also decreased by lowering the temperature, by increasing the salinity and by increasing dissolved oxygen. The major factor however is the pH of the water.

CLOSED BAG: IMPACT OF AMMONIA

Fortunately, in a closed bag system the carbon dioxide (released from the koi's gill as a product of respiration) dissolves in the water to form carbonic acid which forms bicarbonate and hydrogen ions, increasing the acidity.

$\text{CO}_2 + \text{H}_2\text{O} = \text{H}_2\text{CO}_3 - \text{HCO}_3 + \text{H}$



More carbon dioxide yields more hydrogen ions. The bag water progressively becomes more acidic. In a previous article concerning water chemistries during koi transport (Koi USA, March/April 1977) water parameters were determined when the koi were removed from their bags after being in die closed bags 13 hours. A single 20 inch koi was in each of two bags. Each bag contained 3.5 to 4 gallons of water. The pH of the bag water when the koi were placed in the bags was 7.4. The bags were filled with 100% oxygen and sealed. At the end of the 13 hour journey in our koimobile the pH of the bag water was 6.4 and 6.5. The carbon dioxide level was greater than 45 mg./liter in each bag and the total ammonia was 4-5 ppm and 4 ppm. Water pH and total ammonia levels were measured more recently when I received koi from Japan. The koi were in the closed bags just over 24 hours. The koi were slightly larger and each bag contained 4.5 to 5 gallons of water. The pH was 6.5 and 6.4, total ammonia was 6 to 7 ppm in each bag. In a closed bag inflated with oxygen the carbon dioxide released by the koi will progressively increase the acidity of the water to a level at which the ammonia will exist in its nontoxic form ionized ammonia. It is not harmful to the koi. The maximum level of total ammonia acceptable with a pH of 6.5 and a temperature of 70 degrees Fahrenheit is approximately 14 ppm (extrapolated from Diagnostic Ammonia Chart in Summer 94 Koi Health Quarterly by John Redgrove). At 50 degrees F with a pH of 6.5, a maximum of 34 ppm total ammonia could be tolerated by the koi. The total ammonia in the transport water in the previous illustrations is well below the levels tolerated because of the acidification of the bag water by the retained carbon dioxide.

TRANSPORT TANK: IMPACT OF AMMONIA

The pH of the water in a transport tank should remain stable. If anything, over aeration may reduce the carbon dioxide level in the water. This would slightly increase the PH of the water which would slightly increase the proportion of total ammonia existing as toxic non-ionized ammonia. At a temperature of 69 degrees F and a pH of 7.5 only 2 ppm total ammonia would be tolerated by the koi. Ammonia production by the koi will continue during transit. Dependent upon transit time, ammonia production and water volume, a potential toxic ammonia problem must be addressed. One option could be water changes. This could be difficult out in the wilderness with no idea about the make-up of the local water (chlorine, chloramine, heavy metals, etc.).

I prefer to use pond water to prepare the transport water prior to transport so it corresponds to the pond water the koi are accustomed to. Our tap water has low alkalinity and hardness plus chlorine and chloramines Sodium bicarbonate is added to bring the alkalinity level up and increase the buffering capacity. Calcium chloride may be added to increase hardness. NovAqua is added to dechlorinate the water. AmQuel is added to neutralize chloramine plus the anticipated ammonia production during transit. This is estimated from fish load and anticipated transit time.

TRANSPORT TANK WITH BIOLOGIC FILTER

A small active biologic filter associated with a transport tank is an interesting possibility. Certainly the potential ammonia problem could be eliminated. Since the transport systems discussed previously work well, I'll wait to see how this evolves.

BEST CHOICE

The transport tank systems and the closed plastic bag system work well for long distance transport of koi. How far? How many? How often? The koi hobbyist should use the system that is easiest for him or her. Understand that system.



Subscription Vote Results

After a lively debate, members at July's meeting voted overwhelmingly (but not unanimously) to reset club dues at \$35 and no longer offer the KOI USA subscription as part of club dues. Information on the magazine will be given to new members in their new member packets so that they may subscribe on their own if they choose. Current members will have to pay attention to the renewal notices they get from the magazine and renew on their own. It was decided that new dues take effect for 2008 year. BOD will determine in August how exactly we will handle dues and subscriptions between now and then, (whether to pro-rate for a 1/2 year subscription, or require a 1 1/2 year membership, accounting for the combined rates).

2007 Club Calendar

Please note that these locations are subject to change. Be sure to check the newsletter or website each month for the most current meeting information.

DATE	TOPIC	LOCATION
January 28, 2007	"How to fix a leaky pond when all else fails and you don't have \$\$\$."	Marshall's (Auburn)
February 25, 2007	"Getting Rid of Foam!"	Koi Enterprise (W. Sac)
March 25, 2007	"Maximizing Koi Growth"/ KOI GROWTH CONTEST	Caruso's (Lincoln)
April 21, 2007	SPRING BUYING TRIP	BAY AREA
May 20, 2007	Koi Health Q&A, KHV Update, scraping/ microscope demonstration	Georgia Vonk (Lincoln)
June 24, 2007	"The War on Algae"	Tammy Nelsen (Roseville)
July 29, 2007	"How to aerate the pond/ What happens when the power goes out?"	Diane Coit (Sacramento)
August 26, 2007	ANNUAL KOI AUCTION	Avila's (Rio Linda) *Potluck!
September 22-23	ANNUAL KOI SHOW (GROWTH CONTEST RESULTS)	PLACER COUNTY FAIRGROUNDS
October 28, 2007	"DIY Pond Construction"	Kyle's (Lodi) *Spaghetti Feed!
November 18, 2007	"What should I look for when purchasing koi?"	
December TBA	ANNUAL HOLIDAY PARTY	TBA

**Board of Directors**

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Next Meeting

Sunday, August 26 at 1:00. Non-members are welcome to attend. Members may attend the BOD meeting at Noon or the work party, which starts earlier (call Jim Phillips (916) 771-3111) for info.

Home of Mary Beth Avila

6715 22nd St.

Rio Linda, CA 95673

(916) 991-0511

*Please wear sensible shoes, bring a chair, and call Mary Beth ahead of time if you are bringing fish.

TOPIC: Annual CKC Koi Auction & Pot Luck!!!

Meeting is Pot Luck, so please bring a dish to share!

DIRECTIONS:

From South: Take I-99 to Bus. 80 East. From Bus. East take Watt Ave. North Exit. Turn left on Elkhorn Blvd, Left on 22nd St.

From North: Take I-80 West toward Sacramento. Take Exit 98 -"Elkhorn Blvd" toward Greenback Lane. Turn Right on Elkhorn Blvd, then left on 22nd St.

Koi Ahoy

Ellen Evans

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