

# VALLEY OF THE SUN





# KOI CLUB



## Desert Koi Newsletter January 2007

### President's Message

I hope everybody had a wonderful holiday season. What a wonderful time we had at Frank and Ursula's house in December. As we move forward in 2007 we have great meetings set and of course we are co-hosts for the national seminar in June. Please make a point to attend our next koi meeting. Our guest speaker has some awesome bonsai trees located at his home and is a wealth of knowledge.

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<a href="#">About VSKC</a>	
<a href="#">FAQ's</a>	Valley of the Sun Koi Club is a club for all Koi enthusiasts. Whether you are a beginning hobbyist or an experienced Koi keeper, you are welcome in our club. If you would like to know more about Koi, please visit the <a href="#">History of Koi</a> <a href="#">About VSKC</a>
<a href="#">History of Koi</a>	<small>If you have questions or comments about the site itself, please contact the <a href="#">webmaster</a></small>
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VISIT THE VALLEY OF THE SUN KOI CLUB WEB SITE

[WWW.VSKC.NET](http://WWW.VSKC.NET)

# ASK BRYAN

## Are koi babies born or hatched?

Answer: Koi are not live bearers but lay thousands of eggs in a single breeding. Koi must be at least three to four years old and of sufficient size before they breed. Koi require special water conditions and environment before breeding. The eggs and baby Koi must be separated from the adult Koi or they will more than likely be eaten. The baby Koi hatch in about 3 to 7 days depending on the weather. The survival rate for baby Koi is less than 50%.



## AKCA INFORMATION

**Make your reservations now for the 27<sup>th</sup> Annual AKCA Seminar in Mesa, Arizona June 21-24, 2007. We need your help and support for the National AKCA seminar. It will be an opportunity to show case Arizona, and it is the greatest koi event that you could ever attend. Visit our web site for more information.**

**David Yee VSKC AKCA Representative**

# 26th Annual AKCA Seminar

June 21 - 24, 2007 In Phoenix/Mesa, Arizona



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Hosted By The Valley Of The Sun Koi Club  
and the Southern Arizona Koi Association

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# FEATURE ARTICLE

## Breeding Koi

Reprinted from ["Tetra Encyclopedia of Koi"](#); Tetra Press

### Sexing Koi

It is impossible to sex koi smaller than about 25cm(10in) in length, because they are sexually immature. Once the koi exceed this size, the testes (in males) and ovaries (in females) begin to develop. The ovaries are much larger organs than the testes. Females are usually easier to spot, as the belly of a mature female koi is generally plump, whereas males remain streamlined and more 'torpedo' shaped. When males are ready for spawning, they develop breeding tubercles on the head and pectoral fins, principally along the bones of the fin rays. These breeding tubercles appear as fine raised spots and could be mistaken for white spot (Ichthyophthirius). The tubercles are most profuse on the pectoral fins, where they are quite rough to the touch and arranged in fairly regular rows. They are used during breeding, when the male nudges the female with his head and fins to induce her to spawn.

### Spawning

Koi will naturally spawn in the hobbyist pond in the early summer. A water temperature of 20C (68F) is ideal, although koi will occasionally spawn at a temperature of 17C (63F). As the water in the pond warms, the koi will try to spawn 'en masse'. This is known as flock spawning and, although it can produce very healthy offspring, the quality of the patterns and colour are generally poor.

The female koi deposits her eggs - approximately 100,000 per kilogram of her body weight - over the pond walls, floor and on any plants. Unfortunately, it is very difficult to collect eggs deposited in this random manner in order to incubate them in an environment where they will not be eaten by their parents or attacked by parasites. If left to their own devices, a few of the eggs will hatch and you can then collect the offspring and raise them in an aquarium.

You can, however, ensure the survival of a greater number of eggs by placing artificial spawning ropes in the pond. The koi will deposit their eggs on these in preference to using the hard pond wall. To make these spawning ropes, cut 10cm(4in) lengths of 10-15mm (0.4-0.6in)thick nylon-fibre rope and thread these between the strands of a 120cm(4ft)- piece of the same sort of rope.

As the koi prepare to spawn, you will notice males chasing a female, nudging her side with their mouths. The female will occasionally stop and suck at the sides of the pond in an attempt to clean an area on which she can deposit her eggs. This is the time to gently lower the spawning ropes into the pond. Spread out the coils of rope into a fanlike shape and anchor them to the side of the pond.

Try to avoid disturbing the fish before and during spawning, but keep a careful eye on them, as the males may bully some females. If this happens, remove the female and place her in a separate pond. Koi may prefer to spawn around dawn but they may also spawn throughout the day, when they have finished spawning, the females hang head down, respiring heavily, and the other fish will become less excited. Gently remove the spawning ropes and carefully place them in a vat for incubation. Koi are not good parents and unless you remove the eggs from the pond quickly, they will begin to eat them. Immature koi may also eat the eggs, so if you want to rear them, you should separate the spawning koi from others in the pond.

## **Incubating koi eggs**

The incubator should have a reasonable capacity - a household water storage tank (about 450 litres/100 gallons) is ideal - and should, of course, be made of non-toxic materials. It will need a valve-operated water inlet point, and an outlet with as large a surface area as possible, screened with a fine (0.3-0.5mm) stainless steel or plastic mesh. Fine nylon stockings may provide an adequate alternative, although they are less robust.

Lay the ropes out in the vat with 0.2mg/ litre malachite green solution to stop fungus (*Saprolegnia*) from attacking dead eggs and spreading infection to living eggs. Place three lengths of string across the vat to keep the ropes (2in) below water level. Do not add any more water at this stage, but place an airstone on the floor of the vat to gently and continuously aerate the water, as developing eggs need plenty of oxygen. When you begin to see the growing koi's eyes in the egg - after one or two days - run a fine trickle of water into the incubation vat. The day before the koi hatches, the eyes in the egg will have a shine to them. Soon afterwards, the young koi will begin to wriggle then, gradually, over the next few hours, it will break out of its 'shell'. It will take three to four days for the koi eggs to develop and the fry to hatch at temperatures of 20-22C(68-71F). Koi fry can develop at temperatures as low as 17C(63F), in which case their incubation will take five or six days, or as high as 25C(77F), which will decrease their hatching time. However, there is a greater chance of the fry being deformed at such extreme temperatures.

## **The development of the koi egg and fry**

When the fry have hatched, they will instinctively seek shelter and hide in any cover they can find. The spawning ropes are ideal for this. Using a special sticky pad on their heads, the fry attach themselves to the ropes' fronds, or to the vat wall. At this stage in their development, the young koi have no swimbladder, mouth or vent. They breathe by absorbing oxygen through the fine blood capillaries that surround the yolk sac, which is still attached to the gut. It is essential that there is plenty of oxygen entering the water at this stage, as a reduction in the quantity of dissolved oxygen in the incubator could lead to mass mortality.

The koi fry have only one fin, which encircles the posterior end of the body. As the koi grow, feeding on their yolk sac until all the yolk is utilized, they develop paired fins, a mouth and other organs. After two or three days, the young koi swim up to the surface and take two or three gulps of air, which they force into their swimbladder. They then start to swim freely in mid water, usually congregating around the airstones - a sign that they are ready to be fed.

## **First feeding**

Koi fry at the 'swim up' stage do not have any developed taste buds and so must detect their food by sight. Therefore they need to have food all around them. Hard-boiled egg yolk is an ideal food for the first day or so - this has very little dietary value, but will increase the size of the stomach. Newly hatched brine shrimp (*Artemia salina*) larvae are also a good food source for young koi fry. Start feeding the brineshrimp when the koi are about one week old. After another week or so, the koi will be ready for a mash diet (the powder dust that is left after the manufacturing process of fish food). From this time onwards, feed the koi food of a size that can be taken by the smallest fish in the vat.

You will need to remove accumulated debris and waste frequently during this first feeding stage. A siphon made from aeration tubing is ideal for removing settled and suspended waste from the incubator, and an old toothbrush is useful to clean the outlet screen. You should also add fresh water regularly to the vat to remove nitrates and ammonia. Tap water which contains high concentrations of chlorine, should be aerated before it is added to the vat, to allow the chlorine to evaporate. After three or four weeks, the fry will have grown to 5-10mm(0.2-0.4in) in length and will be starting to take larger quantities of more generously sized foods.









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**2427 S Gaucho**  
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**TO:**



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## **SPECIAL EVENTS**

**Club Meeting JAN 21**  
**Chinese Festival FEB 16-18**  
**AKCA Seminar Jun 21-24**